THE IRON TRADE REVIEW

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HEAVY BUYING

AND ADVANCING PRICES CHARACTERIZE THE PIG IRON MARKET,

While Activity in Finished Lines Continues—Nearly 2,000,000 Tons of Rail Orders on Hand.

Heavy buying of pig iron, with prices firm and tending steadily upward, without, however, any tendency toward boom quotations, has been the leading feature during the last week.

Heavy Buying at Cincinnati.

The buying of pig iron through Cincinnati agencies exceeded the heavy purchases for July, fully 200,000 tons having been sold, including 60,000 to 75,000 tons purchased by cast iron pipe interests, mainly for last quarter delivery. Although much of the Southern iron purchased was at prices ranging from $11.50 to $12.00, Birmingham, for No. 2 foundry, there was a decided stiffening of quotations after the large orders were placed. While it is still possible to pick up a little Southern iron at $12, Birmingham, several of the largest producers in the South have withdrawn from the market, others have advanced their quotations to $12.50, and in some markets as high as $12.75, Birmingham, has been asked. The United States Steel Corporation, last Saturday, made its first purchase of Bessemer iron for October delivery at $15, valley, at the meeting of the Bessemer Pig Iron Association held in Cleveland, and negotiations for considerable more iron are pending. The Cambria Steel Co. is also reported to have purchased 20,000 tons at $15. The prices of Bessemer pig are now firm at $15, valley, or $15.85, Pittsburg; while basic has been sold as high as $15.50 at the furnace for delivery during the first half of next year. Other sales of basic have, however, been made at $15, valley. No. 2 foundry is quoted at $15, valley, ordinarily, but several purchasers, not anxious to sell at present, have advanced their quotation to $15.50.

Rail Buying Continues.

The railroads are still buying rails liberally. The New York Central has placed a large tonnage, the exact amount not being announced. Southwestern lines have purchased 100,000 tons from independent mills and other orders are as follows: Georgia Central, 10,000 tons; Northern Pacific, 30,000; Rock Island, 40,000; Norfolk & Western, 25,000; Jersey Central, 10,000. The total rail orders booked for next year, including the part of the tonnage for this year which will go over, now amounts to almost 2,000,000 tons. One large producer has declined over 100,000 tons of rail orders on account of its full capacity being provided for and another company is endeavoring to transfer orders already booked to other mills.

Furnaces Need Ore.

In connection with the great activity of blast furnaces it is interesting to note that inquiries for ore are still being received from furnaces not fully covered. Although it is expected that shipments for the season will amount to more than 30,000,000 tons, sellers are daily compelled to tell customers that they cannot fill orders for the desired grades of ore. It is believed, however, that some customers have ordered beyond their probable requirements up to the opening of navigation next year, and will be able to supply the furnaces which have not fully covered.

Finished Material.

In finished material the market continues active, with consumers very urgently calling for deliveries. The strong demand for bars, both iron and steel, continues. In sheets there is some further improvement, and the leading purchaser is not as willing as it was a short time ago to meet competitive prices. The demand for structural material is very strong, and it is apparent that many builders will not be able to finish their contracts this fall on account of inability to obtain prompt shipment of materials. In Cleveland the situation has been improved somewhat by jobbers being able to get stocks of finished material for prompt shipments from a few consumers who found they had on hand more than they would require during the next few months.

Shipment of Coke.

There has been some improvement in the shipment of coke and the market is somewhat steadier, but the belief is general that there will be further trouble, owing to scarcity of cars. With the improvement in bar iron and pig iron, conditions in the old material market are more favorable for the seller, and prices of some kinds of scrap are considerably higher than they were a few weeks ago.

Late Pittsburg News.

(Special Telegram.)

PITTSBURG, Sept. 27.—P. J. McArdle, whose term as president of the Amalgamated Association begins Oct. 1, reached Pittsburg yesterday and went to Youngstown to settle a dispute in one Republic mill.

The Spang-Chalfant Co., Etna, Pa., this week started its bell weld and treading departments, replacing those destroyed by fire last spring; also its new galvanizing department, and has started organizing a complete fire force, having suffered considerable losses the past two years from fires.

THE WEEK IN IRON CENTERS.

PITTSBURG.

Great Activity in Pig Iron and Finished Products—Prices Advancing.

OFFICE OF *The Iron Trade Review*,
521 PARK BUILDING, September 27.

Tonnage has been coming in at such a rate in plates and merchant mill products that there is every prospect of an advance of $2 a ton in these products being made some time next month. Such an advance would include hoops, despite the fact that they were advanced $2 a ton on the 15th of the present month. The current bookings in plates, structural shapes and merchant mill products are now much heavier than current output, although this is being pushed to the utmost.

The local mill has booked fully 50,000 tons of rails in the week ending today. Total bookings of all rail mills of the country easily exceed 1,500,000 tons for 1906 delivery, outside of the considerable tonnage which will have to be carried over from this year.

Both open-hearth and Bessemer billets are very hard to obtain, and for early delivery very high prices could be secured. A sale of 10,000 tons of Bessemer billets has just been made, but under special conditions, the purchaser being a steel producer, and there being a general principle in the trade of producers doing their best to help each other out. It is not believed that such a tonnage could be secured by a consumer at any price which would be regarded as satisfactory.

There has been an improvement in demand for sheets, tin plates and merchant pipe. Prices on all these commodities have been unsatisfactory. There is some expectation of better prices in sheets, but in the other lines no great hopes are entertained for the present. A spirit seems to prevail in the pipe trade which would prevent any advance until about all the possible capacity is fully engaged.

Pig Iron.—Sales of all grades is considerably heavier, and there is an active inquiry. Foundry can be quoted about 25 cents higher than a week ago. Prices of other grades are firmer, but cannot be quoted more than a shade higher. The United States Steel Corporation is this week closing for a large total of October Bessemer iron, probably considerably more than the 35,000 tons it took for September. The corporation is running every furnace in physical condition to be operated except one or two small detached stacks. Repairs are being rushed on those which are out for this purpose. The Columbus Steel Works will be started as soon as possible, probably early next week, and will require about 600 tons of Bessemer daily, while of course the previously operated steel capacity will take as much iron as formerly. The Columbus blast furnaces, started a little over a fortnight ago, will not be able to entirely supply the demand at Columbus. The price of Bessemer pig is firmly established at $15, valley, or $15.85, Pittsburg. One or two odd speculative lots have sold at lower figures, one lot of a thousand tons going within the past two or three days at a shade under $15.85, Pittsburg, for foundry purposes. There is some large inquiry from regular steel works for Bessemer pig which will likely be closed shortly. A number of private transactions have lately been made, and the valley furnaces are already well sold up on Bessemer. In basic we note purchases from three or four different interests by one consumer aggregating 6,000 tons, all at $15, valley, for various deliveries extending through the first quarter of next year. The purchaser is regarded as an unusually close buyer. The Westinghouse air brake interest has taken over 5,000 tons of foundry, forge and Bessemer within the past few days, while the electric interest is now closing for about 15,000 tons or more for delivery beginning with next quarter and running through the first half of next year. On small lots for early shipment No. 2 foundry is quoted at $15, valley, but on attractive inquiries $14.75 can be done and possibly shaded a trifle. Forge we quote at $14.75, Pittsburg, some grades bringing a trifle more and some a trifle less. Low phosphorus pig is very firm at $20.75, valley, or $21.60, Pittsburg, and early deliveries are not easily secured. We quote:

Bessemer, Valley	$15.00 to $15.25
Bessemer, Pittsburg	15.85 to 16.10
No. 1 Foundry, Pittsburg	16.10 to 16.35
No. 2 Foundry, Pittsburg	15.60 to 15.85
Gray Forge, Pittsburg	14.70 to 14.80
Basic, Valley	15.00
Basic, Pittsburg	15.85

Billets.—Billets and sheet bars are very scarce and almost any prices can be obtained for early deliveries of billets. We note sales of small lots of Bessemer billets at $25 to $25.50, Pittsburg, and of open-hearth billets at $26. Sheet bars are nominally $26 for long lengths and $26.50 for cut bars. A sale of 10,000 tons of Bessemer billets for extended delivery has been made by one steel producer to another, such transactions being put through on special terms. A purchase of this magnitude could hardly be made in the open market by a regular consumer. The transaction is the outcome of the inquiry for 5,000 tons, noted in our report a week ago. The Carnegie Steel Co. will get the Columbus Steel Works started as soon as repairs can be completed, and this will probably be the beginning of next week. It will be put on sheet bars exclusively, for which there is a heavy demand from the sheet and tin plate subsidiary of the corporation and from outsiders on regular adjustment contracts.

Ferro-Manganese.—The market is very firm, with the local producer entirely out of the market and Eastern producers doing very little. On large lots quotations must be secured from abroad in each instance, and the market cannot be accurately quoted. We quote $53 to $54 on very small lots for early delivery and $52 to $53 on fair sized lots.

Muck Bar.—There is very little doing in muck bar. The last quotation noted was $27.75, delivered Pittsburg.

Skelp.—Steel skelp is well sold up for this year and prices have advanced a clear dollar a ton, with deliveries hard to secure, only odd lots being sold by producers as they can spare the tonnage. We advance steel skelp prices $1 a ton, and quote the market very firm at the new figures:

Bessemer steel, grooved, 1.55c; sheared, 1.60c; open-hearth, grooved, 1.60c; sheared, 1.65c; iron, grooved, 1.60c to 1.65c; sheared, 1.65c to 1.70c.

Rails and Track Material.—Rail orders for next year continue to be placed freely, the local mill taking on about 50,000 tons in the past week. Spikes are moving very freely. Some surprise is expressed at the relatively low price of spikes, ordinary carloads going at 1.80c to 1.85c. We quote:

Fifty pounds and heavier, 500-ton lots and over, $28; carload lots and less than 500 tons, $30; less than carload lots, $32; light rails, 16-lb., $29 to $30; 20-lb., $27.50 to $28; 25 to 45-lb., $26; angle bars for standard sections, 1.35c; spikes, 1.75c to 1.85c.

Plates.—To the large tonnage of plates booked in the

past few weeks in connection with steel car orders, there is being added a large tonnage of plates for other purposes, and it is practically certain that an advance, probably $2 a ton, will be made some time next month. Meanwhile tonnage is coming in very freely, chiefly for definite undertakings where the material is certain to be called for at least as early as the mills can furnish it. The local interest, which gets the bulk of the steel car plate business, is fully sold up for this year and has a large tonnage for the first half of next year. In the car buying movement now about over for the present fully 50,000 all-steel and steel underframed cars have been bought, which sells the car shops about up to July 1 next. Some plate orders for early shipment are going to Eastern mills, the local mills being unable to make any early delivery. We quote regular mill prices as follows:

Tank plates, ¼ in. thick, 6¼ in. to 100 in., 1.60c, f. o. b. mill Pittsburg. Extras are as follows per 100 lb.: Flange and boiler steel, 10c; marine, A. B. M. A., and ordinary fire box, 20c; still bottom, 30c; locomotive fire box, 50c; plates over 100 in. up to 110 in. in width not less than 5c extra; plates 110 in. to 115 in. wide, not less than 10c extra; 115 to 120 in., 15c extra; plates 120 in. to 125 in. wide, not less than 25c extra; plates 125 in. to 130 in., not less than 50c extra; plates 130 in. wide, not less than $1 extra; plates 3-16 in. thick, 10c extra; gauges 7 and 8, 15c extra; No. 9, 25c extra. Five cents extra for less than carloads. Terms net cash in 30 days, and for all points of delivery in the United States except Pacific Coast.

Merchant Bars.—Buying of hoops has been very heavy since the advance of $2 a ton on Sept. 15. It is almost certain that merchant steel bars will be advanced some time in October, and hoops will probably be advanced at the same time. The current bookings in all merchant mill products is far beyond current output. Contracts continue to be made with agricultural implement makers for the season to July 1, and with other consumers well into next year. Contracts with jobbers are generally being limited to three or four months ahead. Mills have specifications far ahead, but as consumers have been forehanded in placing them no very serious inconvenience is resulting from the mills being behind. In common iron bars the market is now well established at the price quoted for some time by the leading interest, 1.70c, Youngstown, or 1.75c, Pittsburg, representing an advance in the open market of $1 a ton within 10 days. We quote:

Common iron bars, 1.70c, Youngstown, 1.75c, Pittsburg; hoops, 1.75c, and bands, 1.50c; taking hoop and band extras, respectively. Bessemer steel bars, 1.50c; open-hearth steel bars, 1.50c; plow and cultivator, 1.50c, net; channels, angles, zees and tees under 3 in., 1.60c, all f. o. b. Pittsburg. The following differentials are maintained on steel: Less than 2,000 lb., 10 cents advance; less than 1,000 lb. of a size, 30 cents advance.

Structural Material.—Tonnage in shapes has been very heavy, and beyond the current output of mills. Most of the orders taken are for definite undertakings, but some open contracts are being made. Many of these are to replenish stocks of dealers. The leading mills have specifications on their books for about six months ahead, and cannot take any important business for this year's delivery. Better deliveries can be made by some small Eastern mills. Universal mill plates are well established at 1.60c regardless of width, the $2 differential in favor of plates 14 in. wide and under having been abolished by all the mills. We quote regular mill prices as follows:

Beams and channels 15 in. and under, 1.70c; over 15 in., 1.80c; zees, 1.70c; tees, 1.75c; angles, from 3 to 8 in. inclusive, 1.70c; universal and sheared plate, 6¼ in. and wider, 1.60c, base.

Sheets.—Tonnage has continued to improve. Several of the independent mills are comfortably filled up, and are turning away business offered at prices which could formerly be done more generally. Extreme concessions are not in evidence now, and the market is very firm at 2.25c to 2.30c for black and 3.30c to 3.35c for galvanized, No. 28 gauge, in carload lots for mill shipment with favorable specifications. In large lots prices are $1 a ton lower, and it is doubtful if the most desirable order would bring out a lower price. The sheet market is slowly responding to influences which were expected to be felt before this. About 85 percent of the independent and combine capacity is engaged, and prices of steel are extremely firm. We quote nominal prices on different gauges as follows:

No. 30, 2.65c; No. 29, 2.55c; No. 28, 2.40c; No. 27, 2.30c; Nos. 25-26, 2.25c; Nos. 22-24, 2.20c; Nos. 17-21, 2.15c; Nos. 15-16, 2.10c; Nos. 13-14, 2.05c; Nos. 10-12, 2c. Galvanized, Nos. 10-11, 2.35c; Nos. 12-14, 2.45c; Nos. 15-16, 2.55c; Nos. 17-21, 2.70c; Nos. 22-24, 2.85c; Nos. 25-26, 3.05c; No. 27, 3.25c; No. 28, 3.45c; No. 29, 3.70c; No. 30, 3.95c. Quotations f. o. b. Pittsburg, 30 days net, 2 percent off cash 10 days.

Wire and Wire Nails.—The market is reported as quite firm at the new prices, with a good tonnage moving. We quote:

Wire nails, jobbers' carload lots, $1.75; retailers' carload lots, $1.80, and less than carloads, $1.90; painted barb wire, $1.90 for jobbers in carloads; retailers' carloads, $1.95, and less than carloads, $2.05, with 30c for galvanizing. Annealed smooth fence wire is held at $1.60, with the usual differentials to retailers for carloads and less than carloads. Quotations are all f. o. b. Pittsburg, 60 days, with 2 percent discount for cash in 10 days. Iron and steel cut nails, $1.70 to $1.75.

Merchant Steel.—Demand continues good, with prices unchanged as follows:

Cold rolled and ground shafting, 50 percent off in carload lots, and 45 off in less than carloads, delivered in base territory; tire steel, 1.0c; open-hearth spring steel, 2.25c to 2.50c; sleigh shoe flat, 1.50c to 1.55c; smooth finished machinery steel, 1.70c to 1.75c; toe calk, 2c to 2.05c.

Pipes and Tubes.—Demand shows quite an improvement and would be regarded as entirely satisfactory for the season of the year, were it not that the whole pipe business has gotten into a rather demoralized condition, competition being very keen considering the amount of business going. We quote merchant pipe in carload lots to jobbers, ¾ to 6-in. inclusive, at 80 percent off list for black and 70 off for galvanized.

	Steel		Iron	
Carloads	Black	Galv.	Black	Galv.
⅛ and ¼ inch	68½	52½	66½	50½
⅜ and ½ inch	72½	60½	70½	58½
¾ to 6 inches	76½	66½	75	65
7 to 12 inches	71½	56½	70	54½
EXTRA STRONG PLAIN ENDS.				
⅛ to ⅜ inch	60	48	58	46
½ to 4 inches	67	55	65	53
4½ to 8 inches	63	51	61	49
Double extra strong plain ends, ¼ to 8 inches	56	45	54	43

MERCHANT BOILER TUBES, CARLOADS, 22 FEET AND UNDER.

	Steel	Iron
1 to 1½ inches	44	41
1¾ to 2¼ inches	56	41
2½ inches	58	46
2¾ to 5 inches	64	53
6 to 13 inches	56	41

Less than carloads, two points less.

Old Material.—The market is very strong and prices are somewhat higher. Dealers are apparently willing to carry scrap until winter, when they expect much better prices. We note a sale of 2,000 tons of low phosphorus

scrap by a leading mill to a large consumer, for extended delivery. We now quote prices as follows:

Heavy melting stock, $15.75 to $16; low phosphorus scrap, $19.50 to $20.50; rerolling rails, $16; cast scrap, $14.75 to $15.25; borings, $9.50 to $10; No. 1 wrought, $17 to $17.50.

Coke.—The market is very firm for prompt coke. There is considerable inquiry among blast furnaces for prices on contract coke for next year, but as yet the market has not become settled. We quote standard Connellsville furnace coke at $2.30 at ovens for early shipment. On contracts for next year it is quite certain that high prices will rule, probably considerably over $2. We quote standard 72-hour Connellsville foundry coke at $2.50 to $2.60. Production in the old Connellsville region in the week ending Sept. 16 is reported at 260,219 tons, a decline of 1,441 tons from the previous week. Shipments in the same week were 11,191 cars, a decrease of nearly 600 cars, and were distributed as follows: To Pittsburg district, 4,179 cars; to points west of Pittsburg, 5,755 cars; to points east of Everson, 1,257 cars. Shipments from the lower Connellsville region were 2,466 cars.

CHICAGO.

Remarkable Activity Continues with Advancing Prices—Big Producers Withdraw.

OFFICE OF *The Iron Trade Review*,
1164 MONADNOCK BLOCK, September 27.

Unbounded activity and strength continue the most prominent features of the local market. From a tonnage standpoint, the week has been a splendid one. The voracious demand for pig iron has wiped out practically all the stocks in furnace yards and forced the withdrawal from the market of several large Birmingham interests. The $12 basis has gone by the board, and $12.50 is now the minimum at which trading can be done in Southern irons. Western irons are equally as strong, prices having advanced 50 cents a ton last week, or to the basis of $17 Chicago for No. 2 foundry. No abatement is noticed in the demand for rolled materials. The Illinois Steel Co. last week declined over 100,000 tons of rail orders because of its sold-up condition, and the business went to Eastern mills. The Republic Iron & Steel Co. is also refusing further rail tonnage. It is now endeavoring to transfer the orders already booked to other makers, and has offered round lots to the Illinois, Carnegie and Lackawanna companies. Shipbuilding construction draws heavily on the local plate market, the South Chicago mill figuring on an additional 30,000 tons for lake consumption. This interest has advanced plates 14 in. wide and under, $2 a ton, quoting 1.76½c uniformly on material up to 100 in. wide, and following the example in this connection of the Carnegie Steel Co., which made the change some months ago. Demand for iron and steel bars is strong. Heavy sizes are scarce and premiums are being paid for quick shipment. Sheets and merchant pipe are slowly gaining strength, though without any change in prices as yet. Forging billets are hard to obtain and are strong in value. Scrap has advanced to higher levels, but no increase is noticed in consumptive demand. Connellsville coke is higher, standard 72-hour grades being quoted $2.75 at the ovens.

Pig Iron.—Trading last week was of heavy proportions and culminated in the withdrawal from the market of the Tennessee Coal & Iron Co. and the Sloss-Sheffield Steel & Iron Co., as well as of several smaller producing interests. Both companies have sold all the iron they had in storage and practically their entire output for the balance of this year, and have to offer only a small tonnage of gray forge and other cheaper irons. The furnaces still in the market have taken advantage of this condition to advance their prices 50 cents a ton, and $12.50 Birmingham for No. 2 foundry is the minimum at which Southern irons can now be bought. Local stacks share the optimistic feeling that prevails south of the Ohio river. The Eastern furnaces which have been invading this market are about sold up and no longer menace Western producers. The latter have advanced their prices 50 cents a ton and are firm at $17 Chicago for No. 2. Lake irons are very scarce, the demand far exceeding the supply. The tremendous activity in pig iron this month may be estimated from the sales of the Sloss-Sheffield brands, which are said to aggregate 100,000 tons, while the Tennessee company's figures for the same period are reported to be considerably higher. The scarcity of cars at all points is a cause of much uneasiness, and no small apprehension is felt, that with the advent of wintry weather there will be a repetition of the blockades and famine that was experienced in 1902-03. We have revised our prices, and quote as follows:

Lake Superior charcoal	$ 17.50
Northern Foundry No. 1	17.50
Northern Foundry No. 2	17.00
Northern Foundry No. 3	16.50
Northern Scotch Foundry	17.50
Ohio Strong Softeners No. 1	17.30
Ohio Strong Softeners No. 2	16.80
Southern Foundry No. 1	16.65
Southern Foundry No. 2	16.15
Southern Foundry No. 3	15.65
Southern Foundry No. 4	15.40
Southern No. 1 Soft	16.65
Southern No. 2 Soft	16.15
Southern Gray Forge	14.65
Southern Mottled	14.40
Southern Silveries (4 percent to 6 percent Silicon)	17.65 to 18.15
Jackson Co. Silveries (8 percent to 10 percent Silicon)	19.80 to 20.30
Alabama and Georgia Car Wheel	20.65
Malleable Bessemer	17.00
Basic Iron	16.65 to 17.15

Billets.—Forging billets have been in good demand during the week under review, one lot of 1,800 tons having been closed at $32 and another lot of 3,000 tons at a lesser price. For carload lots $35 is easily obtained, while for smaller quantities a better price than even this has been secured.

Bars.—Marked activity is the most pronounced feature of local trading. New business for bar iron is especially heavy and prices are firm at 1.65c to 1.70c Chicago for deliveries extending as far as the first quarter of 1906. Specifications for steel bars continually exceed the output of mills heavy rounds and other large sizes being scarce. Trading is light in hoops, Western consumers having covered some months ago for their requirements up to June 31 next. Small angles are scarce and prices extremely firm. We quote carload lots, Chicago delivery, as follows: Bessemer and open-hearth bars and bands, 1.66½c, half extras; soft steel angles, less than 3 x 3, 1.76½c; hoops, 1.91½c base, full extras. Hard steel angles, 1.60c. There is a brisk demand from store and prices are strong. We quote bar iron, 1.95c base, full extras; soft steel bars and bands, 1.85c to 1.90c base, half extras; soft steel angles, channels and tees, under 3 in., 1.95c to 2c; hoops, 2.30c base, full extras.

Sheets.—The market continues to show improvement, being most conspicuous in blue annealed sheets. Some tonnage of black sheets was taken during the week on the basis of $2.25 Pittsburg for No. 28 gauge, but these offerings are by no means as numerous as they were a few weeks ago. The market generally is $1 higher. Galvanized sheets are in fair demand, and on a desirable order our quotations below can be shaded $1 a ton. We quote carload lots, mill shipments, Chicago delivery, as follows: Blue annealed sheets, Nos. 9 and 10, 1.81½c; Nos. 11 and 12, 1.86½c; Nos. 13 and 14, 1.91½c; Nos. 15 and 16, 2.01½c. On box annealed, one pass, cold rolled, we quote: Nos. 18 and 20, 2.21½c; Nos. 22 and 24, 2.26½c; Nos. 25 and

26, 2.31½c; No. 27, 2.36½c; No. 28, 2.46½c; No. 29, 2.56½c. We quote on lots from warehouse stocks, as follows: No. 10, 2.15c to 2.20c; No. 12, 2.20c to 2.25c; No. 14, 2.25c to 2.30c; No. 16, 2.35c to 2.40c; Nos. 18 and 20, 2.50c to 2.55c; Nos. 22 and 24, 2.55c to 2.60c; No. 26, 2.60c to 2.70c; No. 27, 2.75c to 2.80c; No. 28, 2.85c to 2.90c; No. 29, 3c to 3.05c. Galvanized sheets, mill shipments, Chicago delivery, are quoted as follows: Nos. 12 and 14, 2.41½c; No. 16, 2.56½c; Nos. 18 and 20, 2.71½c; Nos. 22 and 24, 2.86½c; No. 26, 3.06½c; No. 27, 3.26½c; No. 28, 3.46½c; No. 29, 3.71½. Jobbers' prices on small lots from store are as follows: Nos. 10 to 14 inclusive, 3.10c; No. 16, 3c, Nos. 18 and 20, 3.10c; Nos. 22 and 24, 3.25c; No. 26, 3.50c; No. 27, 3.70c; No. 28, 3.95c; No. 29, 4.40c; No. 30, 4.85c.

Structural Steel.—No change is observed in the general situation. The demand continues of unprecedented volume, mills being utterly unable to keep pace with their specifications. A large tonnage for lake shipbuilding construction is pending, the steel being required for nine new freighters. We quote carload lots, mill shipments, Chicago delivery, as follows: Beams and channels, 3 to 15 in., inclusive, 1.86½c; angles, 3 to 6 in., ¼ in. and heavier, 1.86½c; angles larger than 6 in. on one or both legs, 1.96½c; beams larger than 15 in., 1.96½c; zees, 3 in. and over 1.86½c; tees 3 in. and over, 1.91½c; with the usual extras for cutting to exact lengths, punching, coping, bending or other shop work. We quote prices from store as follows: 2.20c to 2.30c for angles, beams and channels, base sizes, with 2.30c to 2.40c for 18, 20 and 24-in. beams; tees and zees, 2.25c to 2.35c. These prices are for either random lengths or cut to specifications in excess of 5 ft.

Plates.—The incessant demand for plates that has marked the summer season continues in undiminished volume. The local mill removed last week the differential of $2 a ton on plates 14 in. wide and under, and is now charging on the basis of 1.76½c for all sizes up to 100 in. wide. The shipbuilding contract mentioned a week ago has not yet been let, but it is expected will be closed up in the next few days. We quote carload lots, Chicago delivery, as follows: Tank steel, ¼ in. and heavier, up to 100 in. wide, 1.76½c base; flange steel, 1.86½c base; marine steel, 1.96½c base, all full extras. Plates, 3-16 in. thick, $2 extra; gauges 7 to 8, $3 extra; No. 9, $5 extra. Less than carload lots, $5 extra. Jobbers report a good movement from local stocks with store prices firm. We quote on small lots as follows: Tank steel, ¼ in. and heavier, up to and including 72 in. wide, 2c to 2.10c; over 72 in. wide up to 100 in., 2.10c to 2.20c; over 100 in. wide, usual mill extras, 3-16 in. up to but not including 72 in. wide, 2.10c; 3-16 in., 72 in. wide, 2.35c; flange steel, 25c extra; heads, 25c extra.

Rails and Track Supplies.—The decision of the Republic Iron & Steel Co. to take on no further rail orders has deflected a large tonnage to the other producers. That it will be some time before this company will be a factor in rail production is evident from the efforts it has recently made to transfer all the rail orders on its books to the Carnegie and Lackawanna interests. What success it has had in this direction cannot be learned, but it is reported that it has not yet succeeded in disposing of all the orders it had taken. Inquiries for standard sections last week in this market were very heavy, and Southwestern roads placed over 100,000 tons with independent mills in the East. The local mill was offered this business, but had to decline it because its output for 1906 was already taken up. Relaying and light rails are sharing in the heavy buying movement, and prices on both are stiff. Track supplies continue to be ordered in large quantities. We quote heavy sections in 500-ton lots, f. o. b. mill, $28; less than 500 tons to carload lots, $30; less than carload lots, $32. Light rails are as follows: 12-lb. sections, $29; 16-lb., $28; 20-lb., $27; 25-lb., $26; 30, 35, 40 and 45-lb. sections, $25, all f. o. b. Milwaukee mill. Track supplies, f. o. b. Joliet mill: Angle bars, 1.50c to 1.75c, according to tonnage; spikes, first quality, 1.80c to 1.85c; track bolts, 3¼ x ¾, with square nuts, 2.40c to 2.50c per lb., with hexagon nuts, 2.55c to 2.65c.

Merchant Steel.—There is no change in the local situation. Specifications continue to the full capacity of all the mills. Little new business is being taken on, as the probabilities of it being shipped within the next six to nine months are very remote. Prices are firm and without change. We quote carload lots, mill shipments, Chicago delivery, as follows: Spring steel, 2.10c; sleigh shoe, flat sizes, 1.71½c; concave and convex, 1.86½c; cutter shoe, 2.35c to 2.40c; smooth finished machinery steel, 1.91½c; smooth finished tire, 1.86½c; plow steel, 2.20c and upward, according to quality; toe calk steel, 2.21½c; railway spring, 1.86½c. Cold rolled shafting, 52½ percent off to dealers, 50 percent off in carload lots, and 45 percent in less than carload lots. Crucible tool steel, 6½c to 8c; special grades of tool steel, 13c and up.

Cast Iron Pipe.—No orders of conspicuous size were closed last week. Routine business is of good volume and prices are firm. We quote carload lots, f. o. b. Chicago, as follows: 4-in. water pipe, $29.50; 6, 8 and 10-in., $28.50; 12-in. and larger, $27.50, with $1 extra for gas pipe.

Merchant Pipe.—Current business is of excellent volume. The market has a better tone and prices are steadier. Official quotations continue to be shaded, desirable business commanding 80 percent discount, and sometimes better. The leading interest reports that its sales thus far this month already exceed the orders booked in August. For purposes of comparison we continue to quote the card rates of the National Tube Co., which, while they are not adhered to, have never been officially changed.

MERCHANT PIPE.

	Steel.		Iron.	
	Black. Percent.	Galv. Percent.	Black. Percent.	Galv. Percent.
⅛ to ¼ inches	65.85	49.85	63.85	47.85
⅜ to ½ inches	69.85	57.85	67.85	55.85
¾ to 6 inches	73.85	63.85	72.35	62.35
7 to 12 inches	68.85	53.85	67.35	51.85

PLUGGED AND REAMED.

	Steel.		Iron.	
1 to 4 inches	71.35	61.35	69.85	59.85

EXTRA STRONG PIPE.

⅛ to ¼ inches	58.85	46.85	56.85	44.85
⅜ to 4 inches	65.85	53.85	63.85	51.85
4½ to 8 inches	61.85	49.85	59.85	47.85

DOUBLE EXTRA STRONG PIPE.

⅛ to 8 inches	54.85	43.85	52.85	41.85

Boiler Tubes.—An exceptionally strong market exists in boiler tubes. Demand is heavy, and for quick shipments premiums have been paid on some sizes. We quote carload lots, Chicago delivery, as follows:

BOILER TUBES.

	Steel.	Iron.	Seamless.
1 to 1½ inches	40.35	37.35	$3.00
1¾ to 2¼ inches	54.35	39.35	40.00
2½ inches	56.35	44.35	43.00
2¾ to 5 inches	62.35	51.35	
6 to 13 inches	62.35	37.35	Up to 4½ inches $0.50

Less than carload lots from store, as follows:

	Steel.	Iron.	Seamless Steel.
1 to 1½ inches, inclusive	40	35	42½
1¾ to 2¼ inches, inclusive	50	35	35
2½ inches, inclusive	52½	35	30
2¾ to 5 inches, inclusive	60	47½	42½

Wire Products.—The wire nail and wire trade is in first-class condition. Orders are unusually heavy, the market being

firm and prices of an advancing tendency. For the first time in many months there is absolute harmony between the various producers in the matter of prices. A meeting of the independent mills will be held in this city this week, for what purpose it cannot be learned. We quote carload lots to jobbers, mill shipments, Chicago delivery, as follows: Wire nails, $1.90; painted barb wire, $2.05; galvanized barb wire, $2.35; smooth annealed wire, $1.75; smooth galvanized wire, $2.05; polished staples, $2.00; galvanized staples, $2.35.

Coke.—An improvement is noted in the shipments of coke into this market and the supply for the past seven days was steadier than during the week previous. The relief, however, is felt to be only a transitory one, and apprehension is constantly felt that the scarcity of cars at ovens will be felt more keenly with the approach of cold weather. Good Connellsville foundry coke is quoted at $2.75 ovens, though poorer grades are offered at 25 cents below this price. Connellsville furnace coke ranges from $2.10 to $2.25 at the ovens. Wise County (West Virginia) and other brands of coke range from $4.50 to $5 Chicago.

Old Material.—With the general improvement and activity in all forms of finished material scrap has shared and has hardened in price as bar iron and pig iron have advanced. There is keen competition among local dealers for the offerings of railroads and other producers, and they are putting the metal in storage in anticipation of still higher prices ruling after the first snowfall. The only list of importance that has been taken up this week was that of the Burlington railroad for about 2,500, though several deals were closed last week. We have revised our prices to meet the changed conditions, and quote gross tons, as follows:

Old steel rails (4 feet and over)	$15.50 to 16.00
Old steel rails (less than 4 feet)	15.00 to 15.50
Old iron rails	21.00 to 22.00
Relaying rails, subject to inspection	26.00 to 27.00
Heavy melting steel	15.00 to 15.50
Mixed country steel	12.50 to 13.00

We quote as follows net tons:

No. 1 R. R. wrought	16.75 to 17.25
No. 2 R. R. wrought	15.75 to 16.25
Shafting	17.50 to 18.00
Dealers' forge, No. 1	13.00 to 13.50
Wrought pipe and flues	11.50 to 12.00
No. 1 cast, 150 lb. and less	13.50 to 14.00
No. 1 mill	9.00 to 9.50
No. 1 Busheling	11.50 to 12.00
No. 2 Busheling	11.00 to 11.50
Country sheet	8.00 to 8.50
No. 1 boilers cut	11.00 to 11.50
Boiler punchings	13.50 to 14.00
Iron car axles	23.50 to 24.00
Steel car axles	18.00 to 18.50
Iron axle turnings	11.00 to 11.50
Cast borings	9.00 to 9.50
Mixed borings, etc	9.00 to 9.50
Machine shop turnings	11.00 to 11.50
Railroad malleable	13.75 to 14.25
Agricultural malleable	13.25 to 13.75
Stove plate and light cast scrap	11.25 to 11.75
Old iron splice bars	17.50 to 18.00

CLEVELAND.

Prices of Foundry Pig Firmer—Basic Sells at $15.50 for 1906.

OFFICE OF *The Iron Trade Review*,
BROWNING BUILDING, September 27.

Iron Ore.—In spite of the exceedingly heavy buying early in the season and of the elaborate arrangements for shipment of ore, it is daily becoming more apparent that numerous furnaces which have not covered for their requirements will have trouble in doing so. Sellers of ore are constantly receiving inquiries and in many cases are compelled to state that they will not be able to furnish the ore desired. There is very little unsold ore of high grade. It is undoubtedly true, however, that some consumers have purchased beyond their requirements, and will probably be able to furnish ore to those who have not fully covered. Ore shipments continue at a rapid rate, and, although the tonnage may not be quite as heavy as it was last month, it will not be far from the 5,000,000 mark. The shipments of grain having increased largely, vessels are not as dependent as they were some time ago on the ore trade.

Pig Iron.—Alabama furnaces and some of those in Southern Ohio are still making rather low quotations when necessary to meet northern competition, but the general tendency of prices is upward. The usual quotation for No. 2 foundry is now $15, valley, although there are rumors of this price having been shaded. Some furnaces have advanced their quotation to $15.25 and $15.50 valley, but that action means practically withdrawal from the market. The insistency of the foundrymen upon prompt delivery indicates that they are in urgent need of wrought iron and reports of the foundry indicate unusual prosperity. A sale of basic has been made at $15.50, valley, the amount being 1,400 tons for delivery from December, 1905, to June, 1906. This illustrates the upward trend of prices. The prices of coke are also tending upward, and deliveries are somewhat delayed owing to car shortage. We quote as follows, Cleveland delivery:

Bessemer	$15.85 to 16.10
No. 1 Foundry	16.00 to 16.50
No. 2 Foundry	15.00 to 15.85
No. 3 Foundry	14.50 to 15.00
No. 2 Southern	15.25 to 15.85
Gray Forge	14.50 to 14.75
Gray Forge, Southern	14.00 to 14.25
Lake Superior charcoal	16.50 to 17.00

Finished Material.—Jobbers are enjoying extraordinarily fine business. A few producers of structural material found recently that they would not be able to use all for which they had contracted and have transferred a considerable tonnage to jobbers who were very glad to get it, and are selling it rapidly for prompt shipment. Had it not been for this unexpected tonnage being placed on the market, many builders would have found it difficult to complete their contracts this fall. The independents are not as active in cutting prices of sheets, and the principal producer which until recently was inclined to meet competitive prices, is now firmer in its quotations, and it is probable that an advance will be announced before long. Many of the smaller concerns, using considerable amounts of steel bars are contracting with jobbers at the prevailing price 1.50c Pittsburg. Bar iron is very firm at 1.70c at the mills, and some mills have declined to sell for delivery next year at 1.65c.

Old Material.—Ready purchasers are being found for all the stock procurable and at increasing prices. Heavy steel has advanced and bushelings and castings are strong. In some cases producers are storing their output in expectation of still better prices, which the present state of the market indicates as likely. We quote Cleveland delivery as follows:

Old iron rails	$22.50 to 23.50
Old steel rails (over 6 feet)	15.50 to 16.50
Old steel rails (under 6 feet)	16.50 to 17.50
Old car wheels	15.50 to 16.00
Steel boiler plate	13.00 to 14.00
Steel axles	18.00 to 19.00
Malleable iron (railroad)	15.00 to 16.00
Malleable iron (agricultural)	14.00 to 15.00
Heavy steel	16.50 to 16.75

We quote as follows, net tons:

No. 1 R. R. wrought	16.00 to 16.50
No. 1 busheling	14.00 to 15.00
No. 1 machine cast	13.75 to 14.25
Iron axles	21.50 to 22.50
Axle turnings	11.50 to 12.50
Wrought turnings (free from cast)	10.50 to 11.50
Grate bars	8.50 to 9.50
Pipes and flues	12.50 to 13.50
Tank iron	10.00 to 10.50
Hoop and band iron	8.00 to 9.00
Sheet iron	7.00 to 8.00
Wrought drillings	10.50 to 11.50
Stove plate	10.00 to 10.50
Cast borings	8.50 to 9.50

CINCINNATI.

Heavy Buying Movement and General Advance of Pig Iron Products.

September 27.

Pig Iron.—A wave of buying exceeding the July purchases in volume occurred during the past week. Fully 200,000 tons of iron were sold in this territory, which includes Ohio, Indiana and Southern Michigan. Cast iron pipe interests are reported to have bought between 60,000 and 75,000 tons mainly for last quarter delivery. In addition to the buying of the pipe interests, there were round lot sales of basic and malleable iron. There was a heavy tonnage of foundry iron placed in moderate sized orders. The deliveries in many cases extend into the first quarter of 1906, beginning in the last quarter of this year. Prices ranged from $11.50 to $12 Birmingham for No. 2 foundry. In Northern irons there has also been considerable activity with some strengthening of quotations. Southern Ohio furnaces are now reported to be maintaining $14.50 to $15 furnace for No. 2 foundry as a basis. The effect of the heavy buying has resulted in a number of Southern furnaces withdrawing from the market, and others have advanced their quotations to $12.50 Birmingham. There is still some Southern iron obtainable at $12 Birmingham basis, but the market has a strong advancing tendency. It may be suggested that before the close of the week $12.50 Birmingham on Southern iron may be well established. There is still some pending inquiry, but it is not clear what the attitude of buyers will be when they are confronted by the higher quotations. It has been suggested that a halt in the placing of orders may be expected with the advance in price. There are those, however, in the trade who feel confident of continued demand and a further strengthening of values. This view of the situation is supported by the withdrawal from the market of some of the large Southern producers. The heavy buying movement came almost as a surprise and leaves the situation in a somewhat unsettled condition. The actual position of prices at this writing is difficult to locate. Some sales agencies believe that the market has already reached the $12.50 basis, and owing to the number of Southern producers that have advanced prices or withdrawn from the market, this view of the situation may soon be proved to be correct. One feature of the situation which should be highly satisfactory to the producers is that the iron purchased this week was taken in at $12 or less, and as an advance of 50 cents per ton is practically in sight, the consumer will continue to take iron due on contracts without hesitation, as all iron delivered will be billed at prices under the current market, and there will be no inducement to hold up shipments. We quote f. o. b. Cincinnati as follows:

Southern Foundry No. 1	$15.25 to 15.75
Southern Foundry No. 2	14.75 to 15.25
Southern Foundry No. 3	14.25 to 14.75
Southern Foundry No. 4	13.75 to 14.00
Southern Foundry No. 1, soft	15.25 to 15.75
Southern Foundry No. 2, soft	14.75 to 15.25
Gray Forge	13.25 to 13.50
Northern Foundry No. 1	16.15 to 16.65
Northern Foundry No. 2	15.65 to 16.15
Northern Foundry No. 3	15.15 to 15.65
Jackson County Silvery, 8 percent	18.15 to 19.15
Southern Charcoal	18.25 to 18.75

Finished Material.—The market continues active and firm. The only change in price has been the withdrawal of the differential of 10 cents in favor of plates 14 in. wide. All plates are now quoted at the standard price at the mill. There is no abatement in the demand for structural, and sheets are showing an improved inquiry. Bar iron is firm at quotations. Bar iron is quoted at 1.65c to 1.70c; steel cars at 1.63c, half extras, with dealers quoting 1.85c for iron and steel out of store. Galvanized sheets, No. 10 and No. 12, in car lots are 2.48c. We quote black sheets, No. 27 at 2.30c in car lots of 500 bundles. Black sheets out of store are selling as follows: No. 28, 2.70c; No. 27, 2.60c; No. 16, 2.20c; No. 14, 2.10c; No. 12, 2.05c; No. 12, 2c. Tank plates are firm and sell out of store at 2c for ¼-in. and 2.10c for 3-16, No. 8 and 10. Beams and channels are quoted at 2.25c to 2.50c from stock and angles at 2c to 2.05c for base sizes.

In merchant pipe the market is quotably unchanged, and there is still some irregularity in prices, although the general tone of the market is firmer. We quote f. o. b. Cincinnati:

MERCHANT PIPE.

(Basing Discounts.)

	Steel Pipe. Black.	Steel Pipe. Galv.	Guaranteed Wrought Iron Pipe. Black.	Guaranteed Wrought Iron Pipe. Galv.
	Percent.	Percent.	Percent.	Percent.
⅛ and ¼ inches	65.35	49.35	63.35	47.35
⅜ and ½ inches	69.35	57.25	67.35	55.35
¾ to 6 inches	73.35	63.35	75.85	61.85
7 to 12 inches	68.35	53.35	66.85	51.35

Coke.—There has been a firm market with prices showing an advancing tendency. Foundry coke for next year's delivery is in good request and ovens are asking stronger prices. Connellsville and Wise county cokes are quoted higher. Other districts are holding firmly. There has been a good business in coke during the week, and some rather large contracts have been placed. Prices in the various coke producing districts are as follows f. o. b. ovens:

†Wise County, Va. Furnace Coke prompt shipment	$ 2.25 per ton
Wise County, Va. Foundry Coke on contracts	2.75 to 3.00 per ton
Pocahontas Furnace Coke on contracts	2.10 to 2.25 per ton
Pocahontas Foundry Coke on contracts	2.40 to 2.50 per ton
*Connellsville Furnace Coke on contracts	2.10 to 2.25 per ton
*Connellsville Foundry Coke on contracts	2.60 to 2.75 per ton
Kanawha Furnace Coke on contracts	2.10 per ton
Kanawha Foundry Coke on contracts	2.35 to 2.50 per ton

†Wise County, Va., Coke on Furnace contracts is sold mainly on a sliding scale basis for pig iron prices.
*Connellsville Coke inside prices apply to "main line" ovens and not to strictly Connellsville Coke.

Old Material.—The market maintains a firm tone with dealers buying the offerings readily, but melters have not taken hold as yet with much freedom. We quote f. o. b. Cincinnati:

Old No. 1 railroad wrought, net tons	$14.00 to 15.00
Cast machine and foundry, net tons	12.00 to 13.00
Old iron rails, gross tons	20.00 to 21.00
Old steel rails, gross tons	15.00 to 16.00
Old short lengths, gross tons	14.00 to 15.00
Old iron axles, net tons	20.00 to 21.00
Stove plate, net tons	9.50 to 10.00
Wrought turnings, net tons	9.00 to 10.00
Cast borings, net tons	7.50 to 8.00
Car wheels, net tons	14.00 to 14.50

PHILADELPHIA.

Prices Advancing and Orders are Numerous—Production of Pig Increases.

PHILADELPHIA, Sept. 26.—The past week has been marked by a decided stiffening in prices and by a great rush of business. Announcement has been made by a number of furnaces that they are already booked up to their full capacity for 1905 and that all orders now taken must be for 1906. This immense demand, which can hardly be called sudden, as it was confidently predicted all summer, has raised some interesting problems as to the future course of prices, which are now puzzling both buyer and seller. In keeping with the general law of supply and demand, and fully aware that the cost of production, through the increased prices of ore and coke, is likely to be higher next year than this, many producers think that they are entitled to a dollar or two more on 1906 iron, but at the same time, warned by past experience as to the check given to consumption by higher prices,

they hesitate to give quotations notably higher than those now ruling. In view, however, of the record-breaking business already in sight for 1906 it is difficult to see how considerably higher figures can be avoided, if the furnace man is to get his fair share of the profits accruing from this general prosperity. In the meantime the market is very strong, and a large amount of business has been placed for the first quarter of 1906.

Pig Iron.—The pressing demand for pig iron is already having its natural result in the resumption of business of several furnaces that were blown out during the summer. The Marshall furnace at Newport, Pa., will go into blast about Oct. 15, and several other old stacks which cannot be operated with profit in times of low prices, are reported to be prepared to blow in. In this connection it is worth noting that the Musconectong (N. J.) furnace is preparing to go out of blast after a continuous operation of about 50 months, which is claimed to be almost a record-breaker. Repairs will be made with all speed and the furnace blown in again as speedily as possible. Prices are responding to the immense business pouring in on the producers, many of whom are almost at their wits' end in their desire to meet the wishes of consumers. Buyers of foundry irons are especially insistent in their demands, and in all lines business is enormous, and it is expected that some records in production will be made during the remaining months of 1905. Prices which generally show an advance of from 25 to 50 cents a ton, may be quoted as follows:

No. 1X Foundry	$17 25 to 17.50
No. 2X Foundry	16.75 to 17.25
No. 2 Plain	16 25 to 16.50
Standard Gray Forge	15.00 to 15.50
Ordinary Gray Forge	14.50 to 15.00
Basic	16.00 to 16.25
Low Phosphorus	20.75 to 21.25
Southern No. 2X, rail	16.00 to 16.25
Southern No. 2X, dock	15.50 to 15.75

Finished Material.—Prices remain nominally unchanged, and so great is the demand that structural materials, such as beams, channels and angles, for which the outside schedule figure is 1.95c, have been selling at 2.60c. Bar iron has developed a more active market, and in nearly all lines the mills are crowded to their fullest capacity, with orders that will keep them busy for many months. Supply houses, unable to secure anything like prompt delivery from the mills, even on the payment of large premiums, have been forced to draw heavily on their stocks. These prices are quoted: Beams, channels and angles, according to specifications, 1.83½c to 2.50c; refined iron bars, 1.63½c to 1.80c; steel bars, 1.63½c to 1.83c; plates, 1.73½c to 1.80c.

Old Material.—The mills still maintain a stiff attitude toward dealers, claiming that their prices are too high, but considerable business is being done nevertheless, and prices, in keeping with the general trade, show a hardening disposition. Steel scrap is especially strong, showing some gains in price. The following figures are quoted:

Old steel rails	$16.50 to 17.00
No. 1 steel scrap	16.00 to 16.50
Old steel axles	20.00 to 21.00
Old iron axles	25.00 to 26.00
Old iron rails	20.50 to 21.50
Old car wheels	15.50 to 16.50
Choice scrap, R. R. No. 1 wrought	20.50 to 21.00
No. 1 yard scrap	18.50 to 19.00
Machinery scrap	15.00 to 15.50
Low phosphorus scrap	20.50 to 21.00
Wrought iron pipe	15.50 to 16.00
No. 1 forge fire scrap	15.00 to 15.50
No. 2 forge fire scrap, ordinary	12.50 to 13.00
Wrought turnings	13.50 to 14.00
Axle turnings, heavy	14.50 to 15.00
Cast borings	9.50 to 10.00
Stove plates	12.50 to 13.00

The Mineral Ridge Mfg. Co., Mineral Ridge, O., is receiving bids on a variety of machinery with which to equip its new shop and power house.

NEW YORK.

Great Demand for Pig Iron—Large Requirements for Rails Mostly Covered.

OFFICE OF *The Iron Trade Review*,
ROOM 1315, NO. 150 NASSAU ST., September 27.

Pig Iron.—The local market has had its share of the heavy transactions reported from all parts of the country during the week. Prices are strong and quotations have been advanced all along the line. High grade foundry iron for prompt delivery is becoming scarce, and several of the more important producers have withdrawn from the market. Among the furnaces which are blessed with enough orders for the present are those of the Warwick interests and the Sloss-Sheffield Co. The Tennessee Coal, Iron & Railroad Co. also announced that its desire for orders has been satisfied for some time to come. During the past two days the general advance in prices has in a measure checked the buying movement, but considerable requirements are still to be filled. Of the Sloss-Sheffield iron sold during the last week, 8,900 tons were disposed of by the local representative. While this large producer was still in the market the $12, Birmingham, basis for Southern iron prevailed, but today $12.50 and even $12.75 is demanded. Pennsylvania iron has been sold during the past few days for $16, furnace, and New York State producers are demanding and in some cases receiving $15.50 and $15.75. Comparatively little business was transacted in other than foundry grades. A few carloads of gray forge and some 5,000 tons of basic make a small aggregate in comparison with the enormous tonnage of foundry iron sold. Reports of American purchasers in the English pig iron market aroused no little interest, although these shipments are not received at this port. Within the past few days between 25,000 and 50,000 tons of manganese metal has been purchased abroad, and negotiations for from 50,000 to 60,000 tons of Bessemer for steel makers on the Atlantic seaboard are under way. The following are prices at tidewater:

Northern No. 1 Foundry	$17.00 to 17.50
No. 2 Foundry	16.75 to 17.25
No. 2 Plain	16.00 to 16.50
No. 1 Southern Foundry	16.75 to 17.25
No. 2 Southern Foundry	15.75 to 16.25
No. 3 Southern Foundry	15.25 to 15.75
No. 4 Foundry	14.75 to 15.50

Pig Iron Certificates.—Business in pig iron certificates on the New York Produce Exchange was very quiet during the week. No transactions of importance were noted. In view of the great activity in all other branches of the iron trade, this occasioned some surprise. An explanation offered is that the stocks in the yards are extremely low, and that no warrants of the grades required were to be had. This also accounts in a measure for the difference in quotations. Foundry iron warrants follow:

	Bid.	Asked.
October	15.40	.....
November	15.50	.....
December	15.50	.....
February	15.50	16.00
March	15.50	16.00

Finished Iron and Steel.—The extraordinary buying movement which marked the market for heavy steel products a few weeks ago has given place to a cleaning up process. The great contracts for rails have nearly all been placed, and the railroads are now purchasing supplementary lots. Among the rail orders of the week are the following: Georgia Central, 10,000 tons; Northern Pacific, 30,000; Rock Island, 40,000; Norfolk & Western, 25,000; Jersey Central, 10,000. The New York Central also bought heavily, details not reported.

Business in structural shapes is not recovering from the lull into which it has fallen by reason of the extreme scarcity of material, as rapidly as had been expected. The railroads are still in the market for some 40,000 tons for bridges, via-

ducts, etc., but the building of new office structures in the large cities is delayed by the fear that material cannot be delivered as required. The American Bridge Co. reports that the total tonnage for September will exceed that of August, but that it will not reach the figures anticipated at the beginning of the month. With few exceptions lighter steel shapes are selling freely and are participating in the prosperity in the other lines. Plates are in good demand, but no frequent premiums indicate an early advance in price. Some improvement in sheets is reported, and also more business in pipe, but prices are still unsettled. The following are prices at tidewater: Angles, 3 to 6 in. x ¼ in. and heavier, 1.84½c; beams, 3 to 15 in., 1.84½c; tees, 3 x ¼ in. and heavier, 1.89½c; plates, carloads, tank, 1.74½c; flange, 1.84½c; marine and ordinary fire box, 1.94½c; refined iron bars, 1.60c; soft steel bars, 1.64½c to 1.79c; sheets in carload lots, New York, No. 28, black, 2.40c.

Old Material.—There is more interest in the market, but the views as to prices are too far apart to result in much business. There is, however, more activity than a week ago. Prices are well maintained throughout the list. There is good demand for wrought scrap, but very little stock is offered for sale. The following prices are f. o. b. approximately, at tidewater:

Old iron rails	$20.00 to 21.00
Old steel rails, long lengths	14.50 to 15.00
Old steel rails, short pieces	14.00 to 14.50
Relaying rails	22.50 to 23.00
Old car wheels	15.00 to 16.00
Old iron car axles	21.00 to 22.00
Old steel car axles	18.50 to 19.00
Heavy melting steel scrap	13.50 to 14.00
No. 1 railroad wrought scrap	17.00 to 18.00
Iron track scrap	15.00 to 16.00
Wrought pipe	12.00 to 13.00
Cast borings	8.50 to 9.00
Wrought turnings	12.25 to 12.75

BIRMINGHAM.

Market Stronger and Several Companies Have Withdrawn.

Birmingham, Ala., Sept. 25.—Heavy sales of pig iron have been made within a few days, and the Tennessee and Sloss-Sheffield companies have withdrawn from the market.

No. 2 foundry is held strongly at $12 per ton. The lower grades are still enjoying a steady demand, and the furnace companies see no need of pushing them.

The following pig iron quotations are given in this section: No. 1, foundry, $12.50; No. 2, foundry, $12; No. 3, foundry, $11.50; No. 4, foundry, $11; gray forge, $10.50; No. 1, soft, $12.50; No. 2, soft, $12.

The production of iron in this district shows but little change. The raw material supply is a little steadier. The labor situation is but little relieved over what it was a month ago. There is a strong demand for labor at mines, quarries, furnaces, mills and factories. This is an obstacle in the way of record productions.

In steel there is still much activity in the Birmingham district. The Alabama Steel & Wire Co. is giving considerable attention to the manufacture of woven wire. The shipments of the product are as steady and extensive as the production. Good prices obtain for this product. Officials of the company state that the prospects are very bright.

Positive announcement is made that the American Cast Iron Pipe & Foundry Co., organized a few months ago in Atlanta, Ga., E. E. Linthicum, general manager, has purchased a tract of land at North Birmingham and will shortly begin the erection of a big plant on the site to manufacture cast iron pipe. The plant will hardly be ready for operation until next spring. As stated before, the industry will give employment to about 400 men.

The Birmingham Frog & Crossing Co. has started work on its plant at North Birmingham. Several carloads of machinery have been received already and it is expected to have the plant in operation before the end of four months.

The announcement was made last week through telegram from Jackson, Miss., that Gov. Vardsman, of that State, had issued a charter to the Illinois Central Railroad, to build a line from Corinth, Miss., on the main line, to Jasper, Ala. The Illinois Central has a contract with the Frisco System to use their tracks from Jasper into Birmingham. Right of way has been secured from Corinth to Jasper, and the actual construction will begin in the next few weeks. The statement is made that the new railroad intends entering the iron, steel and coal development in this State, and will do all in its power to increase the capacities and also get part of the growing traffic.

The Metal Market.

CHICAGO.

OFFICE OF *The Iron Trade Review*,
1164 MONADNOCK BLOCK, September 27.

The weakening tendency of the last two weeks has been overcome and local trade more active. Prices are stronger, especially copper, and an advance is looked for at an early date. Antimony continues very scarce. We quote lake copper 16½c for carload lots, Chicago, and 16¾c for less than carload lots. Casting copper, 16⅜c for carload lots, and 16⅝c for less than carload lots. Spelter, 5.85c for carload lots and 6c for lesser quantities. Sheet zinc 7¼c for carload lots of 600-lb. casks, and 7½c for less than carload lots. Pig tin, 33c for carload lots, and 33½c for less than carload lots. Pig lead, 4.85c for 50-ton lots, 4.90c for carload lots, and 5c to 5⅛c for less than carload lots. Antimony is quoted at 16c for Hallett's and 17c for Cookson's.

Demand for old metals is strong, and prices have advanced. Dealers' quotations are approximately as follows:

Copper wire, 14¼c; heavy copper, 14c; copper bottoms, 12¾c; copper clips, 13¾c; red brass, 13¼c; red brass borings, 11¼c; yellow brass, 9½c; yellow brass borings, 9c. Pipe lead, 4c; tea lead, 3.75c; zinc, 4c.

NEW YORK.

OFFICE OF *The Iron Trade Review*,
ROOM 1315, No. 150 NASSAU ST., September 27.

Pig Tin.—A fair amount of business was transacted in the local market and prices are a shade firmer than last week. Today's quotations follow: Spot, 31.85c to 32.10c; September, 31.85c to 32⅛; October, 31¾c to 32⅛c; November and December, the same; London, £146 12s 6d and £145 10s. Arrivals, 3,252 tons to date, with 2,180 tons afloat.

Copper.—The market for refined copper has developed more strength and prices are a trifle firmer. A large producer was during the week compelled to buy in order to cover September contracts. Today's closings follow: Lake and electrolytic, 16¼c to 16⅜c; casting 15⅞c to 16⅛c. London's closing today: £70 5s and £69 15s. Exports for the month, 13,639 tons.

Lead.—There was a fair demand for moderate sized lots and prices are well maintained at the old figures: 4.85c to 4.95c; St. Louis, 4.75c to 4.77½c; London £14 2s 6d.

Spelter.—The market is firm and prices rule higher, owing to a scarcity of ore. Today's closings follow: Spot, 5.95c to 6.05c; St. Louis, 5.77½c to 5.82½c; London, £27.

Antimony.—The market is weak and prices range lower. Today's quotations follow: Cookson's, 13½c to 14c; Hallett's 13¼c to 13¾c; other grades 12c to 12¼c.

Large Purchase of English Iron.

(Special Telegram.)

New York, Sept. 27.—London cables to the New York Journal of Commerce report the purchase of 80,000 tons of Middleboro Bessemer for America at 54 to 60 shillings. Sixty shillings are now asked.

THE IRON TRADE REVIEW

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SEPTEMBER 28, 1905

Americans interested in the iron and steel business, visiting in Europe, will find The Iron Trade Review on sale at the office of the International News Co., Breams Buildings, Chancery Lane, London, E. C., England. Copies will be forwarded on request, from London to any address in the world.

COAL AS INSURANCE.

The danger of a general strike of miners in both the anthracite and bituminous districts is now so great that we believe it will be wise for all manufacturers to purchase and store large supplies of coal, so that business will not be paralyzed by even a long cessation of mining. The expenditure involved in such purchases is really a payment for insurance. Men are usually willing to carry insurance on their lives and property when there is no immediate danger of fire or sickness. Far more reason is there for investing in insurance when it is almost certain that such protection will be needed.

The "eight-hour movement," which now threatens to involve the country in two of the most important strikes ever witnessed in the United States—those of the miners and printers—is in reality not so much an attempt to reduce working hours to reasonable limits as it is an effort to obtain higher wages for less work. The demand for higher pay is concealed more or less successfully under an appeal to improve the health and comfort of the working classes by shortening the daily working period.

President John Mitchell, of the United Mine Workers, has been carrying on an energetic campaign, preparatory to demanding an eight hour day. The impression created by his speeches is that the miners are now working long hours, but the truth is that the miners average less than eight hours per day. The Roosevelt Strike Commission reported that "for the contract miners the hours worked certainly do not exceed on the average eight hours." For the remaining employees, known as "company men," the Commission found that the average day's work was 7.6 hours. The change which Mr. Mitchell proposes would mean an increase in the wages per hour of 12½ percent. He hopes to have an army of 150,000 men and boys of the union to endorse this demand for higher wages.

The fight which the International Typographical Union proposes to make for an eight hour day has already been begun, although it had not been expected that this movement would be inaugurated until Jan. 1. In discussing the demands of the printers, the *Financial Chronicle* shows that in New York city there has been a steady advance in wages from 30 cents per hour, prior to 1898, to 39 cents per hour, and that the proposed substitution of the eight hour day for the present nine hour day would result in an increase in wages to 44 cents per hour. There has been an increase in wages of 30 percent in seven years, and under the proposed reduction in the number of hours with the rate of pay kept the same as at present, the increase in wages would be about 11 percent. This is a more unreasonable demand than that of the miners. While something may be said in favor of an eight hour day at nine hour wages for miners, the printer who comes to work at 8 a. m. takes a half hour for lunch, and goes home at 5:30 p. m. has no reason to complain. It is estimated that by cutting off an hour, the productive capacity of a printing shop would be so decreased as to increase costs 20 percent.

The printers now engaged in urging the adoption of the eight hour day may well pause to consider the ultimate effect of bringing about such a change. Many newspapers now have the eight hour day—in fact, we believe it is almost a universal rule,—but the proposed change from nine to eight hours would apply largely to printing houses where job and book work is done and where competition is keen. One effect of reducing the earnings of master printers would compel many shops to go out of business. At the same time, a few non-union shops employing a small number of men and working long hours, would be able to continue and would be an annoyance to all connected with large concerns. These and other results, which would harm the employees as well as the employers, would undoubtedly follow. Any movement inspired by cupidity or laziness, athough its real significance may for a time be concealed, cannot result in permanent benefit. It may, however, cause very great loss to manufacturers, of whom those engaged in printing can not lay up stores to tide over the time of strikes, but manufacturers of iron, steel and other products, by storing coal now, may avert heavy losses.

The impetus given American trade in the Orient by the declaration of peace is probably more clearly

discernible in the iron, steel and machinery industries than in any other fields. The Japanese aggressiveness is apparent in the rapidity with which the reconstruction of the shattered railway lines in Corea is being accomplished. Already purchases of steel rails, structural shapes, cars and locomotives aggregating several millions have been made, and it is estimated that in all $30,000,000 may be expended in this work and in extending lines in Corea and Manchuria. Of this, the United States will probably land $20,000,000 in contracts.

BLAST FURNACE OUTPUTS OF DIFFERENT COUNTRIES.

In a recent issue of the *Iron and Coal Trades Review*, London, there is a discussion of the increases which have taken place in average output per blast furnace in different countries. Tables of output per furnace are given for 1870 and for 1903, which tables we condense into the following:

AVERAGE ANNUAL OUTPUT PER FURNACE.

	1870.	1903.
United States	6,344	95,000
Great Britain	9,120	26,100
Belgium	13,880	34,745
Germany	6,400	41,000
France	4,400	24,800

The general conclusion is drawn that there has been a great increase in average output per furnace, and that the increase has been particularly heavy in the United States, and the question is asked why Great Britain should at the present time be so far behind the United States, Germany and Belgium, as is shown by the figures for 1903. It is admitted that there is a reason for the high average shown by the United States, but it is held that this does not hold as to other countries, since nearly one-half the pig iron made in British blast furnaces is from ores averaging nearly 50 percent iron, while the average content of ores used in Germany, Luxemburg and Belgium does not exceed 40 percent, while in France the average falls below that figure. The *Iron and Coal Trades Review* feels that there is something which needs looking into.

So far as disquietude is felt concerning the high average shown in the comparison by the United States, *The Iron Trade Review* can give testimony to lessen it. The average of 95,000 tons per annum per furnace in the United States is not correct. It appears to have been reached by dividing the output in 1903, 18,009,252 tons, by 190. The fact is that there were many more furnaces than that number in blast, on an average, during 1903. It is true that only 182 furnaces were in blast on December 31, 1903, as shown by the report of the American Iron & Steel Association, but on the other hand there were 320 in blast on June 30 of that year, according to the same authority. It will be easily recalled in the United States that the year 1903 was one in which an unprecedented number of blast furnaces were blown out towards the close of the year, which furnaces had been in blast for almost the whole year. From a careful study of conditions in that year, it is quite safe to say that the average number of furnaces in blast was about 294, which would give an average annual output per furnace of 61,256 tons, or less than two-thirds of that given in the comparison. The average is still much above that of other countries.

Deducting about 35 furnaces in blast making 504,757 tons of charcoal pig iron, there is left an average annual output by the coke and anthracite furnaces in blast of 67,585 tons.

The largest furnaces in Great Britain make a larger output than the smallest in the United States. The difference in average capacity, comparing the two countries, is that changes have come more rapidly in the United States. Large new furnaces have been erected with more facility, and old small ones have been abandoned with more willingness.

BRITISH AND AMERICAN RAILROAD OPERATIONS.

The British Board of Trade has just made a report on the railroads of the United Kingdom in 1904. Some comparisons can be made with American railways, using the figures of the Interstate Commerce Commission for the fiscal year ended June 30, 1904, there being a difference of six months in the periods covered. Capitalizations compare as follows:

British Railways.	
Ordinary stock	$2,337,400,000
Guaranteed and preference stock....	2,174,400,000
Loans and debenture stock	1,661,500,000
Total	$6,173,300,000
American Railways.	
Common stock	$5,050,529,469
Preferred stock	12,289,369,860
Mortgage bonds	5,746,898,983
Income bonds	229,876,687
Equipment trust obligations	173,334,694
Miscellaneous obligations	723,114,987
Total	$13,213,124,679

Earnings from operation and operating expenses compare as follows:

	British.	American.
Gross from operation...	$505,200,000	$1,975,200,000
Operating expenses.....	336,600,000	1,338,900,000

The British report gives the percentage of operating expenses to gross receipts at 62 in both 1903 to 1904. In the United States the percentage of expenses to gross earnings is given at 66 in 1903 and 68 in 1904, but exact comparison cannot be made as the percentages are arrived at in somewhat different ways.

It is seen at a glance that the gross earnings of American roads are almost four times as much as gross earnings of British roads, while the American capitalization is only a trifle more than double. Whether the British roads are actually more valuable

per mile, or are simply more heavily capitalized, the comparison is a very favorable one for the United States. The total freight handled is given at 449,900,000 tons for British roads, and 1,309,900,000 tons for American roads.

FROM PITTSBURG TO THE SEA.

Every one of Andrew Carnegie's libraries floated down past Detroit before it reached its destination.

If one will describe a line from Pittsburg to Wheeling and from Wheeling to Duluth, he will embrace the great industrial area of the United States, an area unrivaled for its mineral deposits and for its matchless waterways. It is the country's great workshop and upon the activity within its borders depends altogether the prosperity of the United States and in a large degree the prosperitv of the world. The chief contribution to this amazing industry and to this measureless wealth is the everlasting hills of the Lake Superior iron country. Beginning with dribbles, the torrent has grown until it now reaches 30,000,000 tons per annum. What has made the movement of this enormous quantity possible? Nothing but the steady deepening of the channels by the general government. In the beginning there was not more than 10 ft. of water in the connecting rivers of the great lakes, and the harbors of Lake Erie had an average depth of 3 ft. A wise government, however, has made forty-five miles of artificial waterway along the chain of great lakes and has increased the depth of the connecting channels to over 19 ft., so that capital is building ships 600 ft. long and capable of carrying 12,500 tons on a single trip. Who reaps the benefit of this? The consumer. Maj. Charles L. Potter in his last annual report filed with the war department shows that the saving in freight charges from the head of the lakes alone last year by reason of improved waterways was more than the total sum expended by the general government during the past fifty years in improving them.

But in the great industrial empire described in this article the great lakes are only a part in the available waterways. There still remains the magnificent river system beginning at Pittsburg and ending at the sea. The proportionate improvement of this river system would do as much for the Ohio and Mississippi valleys as has the improvement of the lake system done for the transportation of ore. There is absolutely no way of measuring the advantages to be derived from the adequate improvement of the internal waterways from Pittsburg to New Orleans. It is really shameful that the great interests centered about Pittsburg should depend upon a freshet system to move their bulk freight. With an established waterway from Pittsburg navigable all the year round, Pittsburg steel makers would deliver their products to New York by water. The river system would dictate the rate of freight and the railways would have to meet it or abandon the movement of heavy freight. With such a system hundreds of mills and factories would locate along the Monongahela and Ohio rivers. The shores of these streams would be lined with plants and no one in the valleys would think of locating elsewhere than on their banks. So great indeed are the advantages accruing from water transportation that the steel makers of Pittsburg could literally afford to dig a 9-ft. channel from Pittsburg to tidewater; but that is not the way to do it. The improvement would redound to the benefit of the whole people and should be borne by the whole people. The slogan "Pittsburg to the Sea" should be made to resound throughout the halls of congress until it becomes a literal fact.

The paper by Dr. David T. Day, chief of the United States Geological Survey, on "Iron Sands in the West," published in this issue, is a notable contribution to the discussion as to the extent of the ore deposits of the United States, and the possibility of economically using ores which have been considered almost valueless. There will probably be strong dissent from the concluding sentences of Dr. Day's paper, especially concerning his statement that ore can be laid down at the furnace at $1 per ton, and *The Iron Trade Review* will be glad to publish any comment which those who differ with him may have to offer.

John Fritz on Education.

In an interview in the *Manufacturers' Record*, John Fritz says:

"If I were a younger man I should seek to establish a large iron plant, and in connection therewith establish a first-class school provided with the very best equipment in buildings and teachers, getting the ablest principal without regard to the amount of salary to be paid. In this plant I would require that the boys of every family employed there should attend school, either night or day, for about two and one-half hours a day, and for the balance of what is coming to be the working day or eight-hour shift in iron works, they should be put into the shops or some department with the opportunity to become good all-around mechanics and practical men. Throughout the country there is a tendency to overeducation in the sense of too much effort at book learning, with no practical knowledge that fits a boy for earning an honest living and making an independent man of him. In the high schools of our country we are largely unfitting boys for the real work which gives them the opportunity of independence and self-reliance and mastery of a trade with the possibilities of unlimited advancement before them. Of dry goods clerks and politicians and shyster professional men we are turning out a surplus, but of men who can run a machine shop, of good mechanics of all kinds, there is a growing scarcity, and yet the mechanic, more independent than any other class of people in the world unless it be the farmer, and even in many respects more independent than the best of farmers, as he neither has to depend upon sunshine or rain, wind or calm, earning from $3 to $6 a day, is in demand everywhere. Advertise for bookkeepers and dry goods clerks and you have a surplus begging for a job; get slightly injured in some railroad accident and you will be beset by lawyers seeking a chance to bring suit; but advertise for men who can do things, for the old-time, all-around mechanic, and you almost seek in vain."

PERSONAL.

Wilhelm Funcke Jr., manufacturer at Hagen, Westphalia, is in America studying American methods.

Herman Laub, Pittsburg, has been named to make the plans for one of the new state bridges to be erected by the commonwealth of Pennsylvania.

C. F. Joyce has resigned his position with the International Iron Co. to go into the assaying business at Duluth, Minn.

C. N. Markle, formerly with the Markle Lead Works, St. Louis, has embarked in the stock and bond business in New York with H. M. Sadler.

Chas. E. Graves, assistant secretary of the Republic Iron & Steel Co., has resigned to go with the Oliver Typewriter Co., of Chicago.

C. W. Sherman, of Pittsburg, becomes superintendent of the foundry of the Pratt & Letchworth Co., Buffalo, Oct. 1.

Isaac W. Frank, president of the United Engineering & Foundry Co., Pittsburg, has returned from his trip to Europe.

It is announced that William Pestell, now connected with the J. G. White Co., New York, is to be the first general manager of the new Worcester Steel Co.

W. J. Fairbairn has resigned as secretary of the Milwaukee Metal Trades Association to become connected with the Bucyrus Shovel & Dredge Co., South Milwaukee, Wis.

F. C. Irvine, formerly with Joseph T. Ryerson & Son, Chicago, has been appointed general sales agent for the American Rolling Mill Corporation, Stock Exchange building, Chicago.

George Hargreaves, who retired from the district management of the American Car & Foundry Co. in Detroit some months ago, has been elected treasurer of Parke, Davis & Co., drug manufacturers of Detroit.

Daniel Gugenheim has been elected to succeed the late Edward W. Nash as president of the American Smelting & Refining Co. S. W. Eccles and C. M. Border were chosen vice presidents, and Edwin Brush, secretary, was made assistant to the president.

Edwin H. Clark, structural engineer, in charge of the testing laboratory of the Drexel Institute, and at one time engineer for the Belmont Iron Works, has been appointed chief of the bureau of building inspection of Philadelphia.

Charles W. Allen, general foreman of motive power of the Reading division of the Philadelphia & Reading Railway, has been given charge of all round houses on the Reading and Lebanon divisions, his territory being extended. His headquarters will be at Reading, Pa.

Howard A. Davis, at present assistant sales manager for the American Sheet & Tin Plate Co., at Pittsburg, has been appointed Philadelphia manager. T. I. Andrews has been chosen assistant general manager of sales at Pittsburg. The changes are effective Oct. 1.

Nathan A. Taylor, of the firm of N. & G. Taylor Co., tin plate manufacturers of Philadelphia, returned on the steamship Baltic on Sept. 14, from an extended tour abroad. While in England Mr. Taylor spent some time investigating the methods employed at the leading Welsh tin plate works.

OBITUARY.

Paul Meehan, of the Meehan Boiler Works, Lowellville, O., died Sept. 19 of typhoid fever. He was 69 years of age.

Capt. Jacob North, well known miner of iron ore in the Berkshire field, died Sept. 15 at Pittsfield, Mass., at the age of 93.

James Chapman, founder of the Fulton Iron Works, Los Angeles, Cal., died Sept. 5 of paralysis. He was a native of Scotland.

James Tissott, founder of the big agate, steel and tinware manufactory at Woodhaven, N. Y., died at his home in that city Sept. 14. He was 84 years old.

John A. Wiley, president of the Davis & Furber Co., North Andover, Mass., died Sept. 1 at the age of 80. He had been with the company for 60 years, being elected treasurer in 1891 and president a few years later.

Alfred Rentz, for many years proprietor of a machine shop at Detroit, and recently superintendent of the machine shops in the Valleo, Cal., navy yard, died Sept. 21 at the age of 65.

Thos. Samuel, outside foreman of rail inspectors at the Ohio plant of the Carnegie Steel Co., Youngstown, was killed Sept. 22 while in charge of a crew unloading rails at the plant.

Charles L. Grimes, for 20 years superintendent for Williams & White, Moline, Ill., and later of the Davenport Locomotive Works, died at Detroit, Sept. 16. He had gone there to take the superintendency of the Piling Air Engine Co.

Thos. Maher, president of the Riverside Foundry Co., Cleveland, died at his home in that city Sept. 24 of heart failure. He had been identified with the foundry business almost all of his life, and was a recognized authority on cast iron car wheels.

Levi Hey, of Rochester, N. Y., died Sept. 15 as a result of injuries sustained from being thrown from his carriage the day previous. He was born in Yorkshire, England, coming to Rochester in 1868, when he started the scrap iron business which was later organized under the firm name of Hey & Co.

Francis Howard Peabody, senior member of the Boston banking firm, Kidder, Peabody & Co., and until about a year ago a director of the United States Steel Corporation, died at his home at Peverly Cove, Mass., on the morning of Sept. 22, at the age of 75. For nearly half a century Mr. Peabody was prominent in the financial circles of the country.

W. P. Appleyard, superintendent of construction of the Pullman Co., was run down and killed Sept. 19 by the locomotive drawing the train on which his wife was returning from an Eastern trip. She did not hear of the accident until two hours later, when the body was brought home. Mr. Appleyard had been with the Pullman company one and a half years.

Henry Merry, a pioneer in the iron industry, died Sept. 26, at his home in Cleveland. He was one of those to develop the resources of the upper peninsula, Michigan, and for 33 years was manager of the Jackson Iron Co. In the early days of the iron business he built the first plank road from Negaunee to Marquette, Mich., over which the ore was hauled by mule teams for shipment to the South. He was a native of England.

RAILROAD SECURITIES MARKET LEADERS.

STEEL COMMON AND OTHER INDUSTRIAL STOCKS ACTIVE.

Money Continues High—Market Suffers Reaction Late in the Week—Principal Features.

The market of the past week was largely monopolized by a number of railroad securities which were largely dealt in with general advances of good proportions. Toward the close of the week, however, they became irregular, and in some cases reactionary. Canadian Pacific, Erie, L. & N., Pennsylvania, Reading and Southern and Union Pacific were the leaders. Industrials were as a rule stronger than the market and steel common netted an advance of one point, presumably on dividend rumors. The general rise in prices early in the week gave way to weakness and fractional losses Saturday and Monday. Money continued unusually high as a result of outstanding loans being heavily increased.

Thursday, Sept. 21.—Stocks opened strong as a result of the failure of London to make the expected advance in exchange rate, and despite the fact that call money again set the season's high record, 4½ percent, there was brisk dealing in railways and United States Steel. The optimistic views expressed by steel officials, coupled with London rumors of an impending dividend on common, brought a fractional advance with sales of over 80,000 shares. The market closed very firm. Railway Steel Spring and American Locomotive showed good advances, with moderate dealing.

Friday, Sept. 22.—An irregular opening due to the expectation of a reaction, gave way early in the day to a tone of confidence when the break failed to materialize. The market wavered somewhat before noon, but again became strong, closing prices being near the best of the day. Call money again reached 4½, but bankers came to the rescue and sent the rate down. Railroad securities continued to sell heavily, L. & N. gaining 3⅛ points, and about 100,000 shares of steel changed hands. Other industrials were dealt in moderately.

Saturday, Sept. 23.—Irregular advances, mostly fractional, during the early hours, were lost on the publication of a bank

THE LEADING INDUSTRIAL SECURITIES.

	Date of 1905 Ann. Meet.	Par Value	Capital Outstanding	Dividend Basis	Dividend Being Paid	Dividend Date Last Div. Dec.	Closing Quotation, Sept. 18	Closing Quo. Sept. 25	Changes
Allis-Chalmers Co	Sept. 7	100	19,820,000				17¾	17½	— ¼
Allis-Chalmers preferred		100	16,150,000	7 cum		Feb., 1904	60	58	—2
American Can	Feb. 7	100	41,233,300				11⅝	11⅜	— ⅜
American Can preferred		100	41,233,300	7 cum	5 Q.	Oct., 1905	69½	70¾	+1¼
American Car and Foundry	June 29	100	30,000,000			May, 1904	36⅝	36	— ⅝
American Car and Foundry preferred		100	30,000,000	7 n. c.	7 Q.	Oct., 1905	96	99⅜	+3⅜
American Locomotive	Oct. 17	100	25,000,000				54⅝	52⅝	—2
American Locomotive preferred		100	24,100,000	7 cum	7 Q.	Oct., 1905	115¼	113¼	—2¼
American Shipbuilding	Oct. 14	100	7,600,000	4	4 Q.	Sept., 1905	58¾	56¾	—2
American Shipbuilding preferred		100	7,900,000	7 n. c.	7 Q.	Oct., 1905	105¼	105¼	
American Steel Foundries	Oct. 3	100	17,700,000				9	9¼	+ ¼
American Steel Foundries preferred		100	17,700,000	6 cum		Aug., 1904	38½	38¾	+ ¼
Barney & Smith	June 6	100	1,000,000			June, 1893	20	20	
Barney & Smith preferred		100	2,500,000	8 cum	8 Q.	Sept. 1905	128½	128½	
Bethlehem Steel	April 4	100	15,000,000				28⅝	29½	+1
Bethlehem Steel preferred		100	15,000,000	7 n. c.	7 Q.	Aug., 1905	87½	87	— ½
Bullock Electric preferred	Oct. 1	100	1,000,000	6	6 Q.	Oct., 1905	113	113	
Cambria Steel	March 21	50	45,000,000	6	3 S. A.	Aug., 1905	27¼	27¼	
Cambria Iron		50	8,468,000	4	4 S. A.	Oct., 1905	48⅛	48⅛	
Colorado Fuel & Iron	Oct. 16	100	30,132,000	7		Apr., 1902	44	43⅞	— ⅛
Colorado Fuel & Iron preferred		100	2,000,000	8 cum		Feb., 1903			
Wm. Cramp & Sons Ship & Eng. Bldg. Co.	May 25	100	6,098,000	5		Nov., 1902	28	28	
Crucible Steel	Oct. 18	100	25,000,000				12¾	12¾	
Crucible Steel preferred		100	25,000,000	7 cum		Sept., 1903	68½	68½	+2
Empire Steel	Feb. 22	100	2,281,400				5	5	
Empire Steel preferred		100	2,500,000	6 cum	3 S. A.	Jan., 1905	35	35	
Fay & Egan	Feb. 21	100	1,000,000	5	5 Q.		60	60	
Fay & Egan preferred		100	1,000,000	7 cum	7 Q.	Aug., 1905	118	118	
General Electric	May 9	100	48,256,050	8	8 Q.	Oct., 1905	183	181	—2
International Pump	June 6	100	12,262,500		2	July, 1905	20	26½	+6½
International Pump preferred		100	8,85 ,000	6 cum	6 Q.	Aug., 1905	78	82	+4
Lake Superior Corporation		100	40,000,000				17	17	
Niles-Bement-Pond	Feb. 1	100	5,000,000	6	6 Q.	Sept., 1905	126½	126¼	
Niles-Bement-Pond preferred		100	2,000,000	6 cum	6 Q.	Aug., 1905	108	108	
Otis Elevator Co	March 20	100	6,350,300		2 A.	Apr., 1905	60	60	
Otis Elevator Co. preferred		100	5,589,500	6 n. c.	6 Q.	Oct., 1905	107	109¾	+2¾
Pittsburg Coal Co	Feb. 11	100	30,135,000				13⅞	15	+1⅛
Pittsburg Coal preferred		100	30,716,200	7		Apr., 1905	54⅛	59⅛	+5
Pressed Steel Car	Feb. 15	100	12,500,000	3		Aug., 1904	45¾	44¼	—1½
Pressed Steel Car preferred		100	12,500,000	7 n. c.	7 Q.	Aug., 1905	96	95½	— ½
Pullman Palace Car	Oct. 19	100	74,000,000	8	8 Q.	Aug., 1905	246	252	+6
Railway Steel Spring	March 2	100	13,500,000		2 A.	Apr., 1905	37⅛	39¼	+1⅞
Railway Steel Spring preferred		100	13,500,000	7 cum	7 Q.	Sept., 1905	98½	98½	
Republic Iron & Steel	Oct. 18	100	27,352,000				23¼	23⅝	+ ⅜
Republic Iron & Steel preferred		100	20,852,000	7 cum	7 Q.	Oct., 1905	94	91½	—2½
Sloss-Sheffield	March 15	100	7,500,000	5	5	Oct., 1905	68	69	+1
Sloss Sheffield preferred		100	6,700,000	7 n. c.	7 Q.	Oct., 1905		105	
Tennessee Coal & Iron	May	100	22,552,800		4 Q.	Nov., 1905	87½	86¾	— ¾
Tennessee Coal & Iron preferred		100	248,300	8 cum	8 Q.	Nov., 1905			
U. S. Cast Iron Pipe & Foundry	June 28	100	12,500,000				30⅝	31	+ ⅜
U. S. Cast Iron Pipe & Foundry preferred		100	12,500,000	7 n. c.	7	Sept., 1905	91⅛	91⅜	+ ¼
U. S. Steel	April 17	100	508,302,500			Dec., 1903	37	37⅜	+ ⅜
U. S. Steel preferred		100	360,281,100	7 cum	7 Q.	Aug., 1905	104½	104⅜	— ⅛
U. S. Steel 5's		100	463,798,000	5	5 A.		97⅜	97 ⅜	
Virginia Iron, Coal & Coke	Sept. 19	100	8,641,600				43	42½	— ½
Westinghouse Electric	June 28	50	20,996,350	10	10 Q.	July, 1905	166	170	+4
Westinghouse Air Brake	Oct. 3	50	10,390,450	20	20 Q.	Oct., 1905	153	149	—4

The following is a daily review, showing the market features of the week:

Wednesday, Sept. 20.—With call money at 4 percent, and London, Paris and Berlin exchange rates extremely high, stocks were active throughout the day and recorded general advances. Railroads were strong leaders, holding the center of interest and making irregular gains of 2 to 7 points. Colorado Fuel, Republic Iron & Steel, Tennessee Coal & Iron and Sheffield steel among the industrials were dealt in moderately.

statement showing a decrease for the week in Associated Bank loans of $9,300,000. Dealings were light, even the leading railway stocks selling less actively. Steel again sold over 100,000 shares, the common closing at 38¼ and preferred at 105⅛. Other industrials were weak.

Monday, Sept. 25.—With London selling actively and the prospect of still higher money rates, the leading stocks became the weakest in the market and extensive liquidation marked the day. Active railway stocks slumped badly, with declines of several points. Money was scarce until the rate of 4½ was reached, where it flowed out plentifully: the high rate prevented large speculators from plunging. Steel stocks were better than the general market.

Tuesday, Sept. 26.—The opening market still showed the effects of Monday's decline, with little tendency toward a rally. Money was kept at 4 percent. United States steel and iron and copper stocks were most active and were fairly strong. Anaconda gained six points. Locomotive sold actively. The market was considerably mixed, alternately strong and weak. Total sales were not great.

Financial Notes.

The financial statement of the Westinghouse Air Brake Co. for the year ending July 31, 1905, shows sales and net earnings largely increased from the previous year. Dividends of $2,198,215 were paid and a balance of nearly $800,000 was left to the credit of the general profit and loss account. The quarterly dividend of 2½ percent with an extra dividend of the same amount will be paid Oct. 10. The annual meeting will be held Oct. 3.

The Central Coal & Coke Co. has declared the regular quarterly dividend of 1¼ percent on the preferred and 1½ percent on the common stock payable Oct. 15.

The American Sewer Pipe Co. has declared a quarterly dividend of 75 cents a share, payable Oct. 2.

The Westinghouse Electric & Mfg. Co. will, on Oct. 10, pay a quarterly dividend of 2½ percent on the preferred assenting and non-assenting stock.

The Hall Signal Co. has declared a regular quarterly dividend of 1¼ percent on its common stock, payable Oct. 2.

The New York Air Brake Co. will pay a regular quarterly dividend of 2 percent.

Charles E. Birch, 149 Broadway, New York, has filed a petition in bankruptcy, with liabilities of $21,267 and no assets. He was at one time a partner in the Industrial Architectural Iron Works, Cincinnati.

The annual report of the Crucible Steel Co. will be sent to stockholders 10 days before the annual meeting Oct. 18. Alexander Thomas, secretary of the company, says that conditions are much improved over last year, and that he believes the bond issue will not be necessary.

The Tennessee Coal & Iron Co. has applied to the New York Stock Exchange to list an additional $350,000 of general mortgage 5 percent bonds due 1951, making a total outstanding of $3,969,000.

The sum of $30,000 has been asked by the administrator of each of five men who lost their lives in the Virginia mine explosion Feb. 20. In all the Alabama Steel & Wire Co. is asked for more than $2,000,000 in damages. One hundred and twelve men were killed in the explosion.

During the last seven years the Canadian Government has paid over $5,000,000 in bounties to iron and steel companies. The Dominion Iron & Steel Co., Ltd., heads the list with $2,250,000.

The Otis Elevator Co.'s quarterly dividend of $1.50 per share on preferred stock is payable Oct. 14.

Chas. B. Oliver & Co., 737 First avenue, New York, has gone into bankruptcy, with liabilities of $21,094 and assets of $3,422. A metal lathe business was conducted.

Current reports indicate that a number of changes in the directorate of the Colorado Fuel & Iron Co. will take place at the annual meeting Oct. 16 and 17.

The Virginia Iron, Coal & Coke Co. for the year ending June 30 reports net earnings of $516,512 and surplus earnings of $89,675. President H. K. McHarg reports traffic arrangements with the Norfolk & Western providing better shipping facilities at the company's mines.

The Wellman-Seaver-Morgan Co., Cleveland, has issued notice of a meeting of the stockholders to be held at the company's offices Oct. 11, to consider and vote upon the following changes in the charter of the company: First, that the holders of the preferred stock of the company shall have a right to vote said stock the same as the common stock is voted. Second, to provide that the preferred stock may be retired at any dividend period by the payment of par, a premium of five percent (5 percent) thereon and all accrued and unpaid dividends. Third, and to provide that the dividends payable to the common stockholders of said company shall be limited to not exceed ten percent (10 percent) per annum until all of the preferred stock of said company is retired. The directors of the company are S. T. Wellman, A. D. Hatfield, G. H. Hulett, J. W. Seaver, Jno. McGregor, and W. F. Carr.

Pennsylvania's Industrial Supremacy.

Although 1904 was a year of industrial reaction in those great industries in which Pennsylvania has long been conspicuous as the leader of all the States—the mining of coal, the manufacture of coke, and the production of iron and steel, its leadership in this year was well maintained, as will be seen by the following table, published by the Bulletin of the American Iron and Steel Association, which gives its percentage of the total production of coal and coke and various leading forms of iron and steel in the whole country in that year. Pennsylvania has not been a large producer of iron ore since the rich iron ores of the Lake Superior region came into general use in the manufacture of Bessemer pig iron.

Products—1904	Production in United States	Production in Pennsylvania	Penna.'s per centage
Coal, all kinds, *gross tons	314,562,881	152,775,871	48.5
Coke, net tons	23,621,520	14,861,064	62.9
Iron ore, gross tons.....	27,644,330	397,107	1.4
Pig iron	16,497,033	7,644,321	46.3
Steel, all kinds.....	13,859,887	7,835,097	56.5
Steel rails	2,283,840	822,108	35.9
Structural iron and steel.	949,146	829,167	87.3

* Pennsylvania—Anthracite, 65 318,490 gross tons; bituminous, 87,457,381 tons: total, 152,7 5,871 tons.

*Pennsylvania—Anthracite, 65,318,490 gross tons; bituminous, 87,457,381 tons; total, 152,775,871 tons.

Eastern Pig Iron Association.—A goodly number of the members of the Eastern Pig Iron Association left New York city on the evening of Sept. 25 for Port Henry, N. Y. The members will be the guests of Witherbee, Sherman & Co., and besides holding sundry formal sessions they will inspect the mines of the locality.

Niles-Bement-Pond Canadian Improvements.—The plant of the John Bertram & Sons Co., Ltd., of Dundas, Ont., recently acquired by the Niles-Bement-Pond Co., is to undergo extensive alterations and improvements. About $300,000 will be spent upon the property. The common stock of Bertram & Sons increased from $200,000 to $400,000, will all be owned by the Niles-Bement-Pond Co. The 6 percent cumulative preferred stock will be increased about Oct. 1 from $100,000 to $200,0000, and it is understood, will be held by the public, the new shares of a par value of $100 having all been subscribed.

NEW RAILWAY EQUIPMENT.

The demand for railroad equipment during the past week has quite kept pace with other conditions in the iron and steel industry. A number of good-sized orders have been booked, and inquiries are pending on much larger contracts which will be closed in the immediate future. In addition, a number of lines have ordered the building of considerable equipment at their own shops.

The contracts of the last week include: Southern, 750 gondolas from the American Car & Foundry Co. and 300 Hart convertibles from the Rodger Ballast Car Co.; Duluth, South Shore & Atlantic, 200 box and 100 flats from the American Car & Foundry Co.; Philadelphia & Reading, 100 hopper and 100 flats from the Standard Steel Car Co.; Duluth, Virginia & Rainy Lake, 150 logging cars from the Russel Wheel & Foundry Co.; Wheeling & Lake Erie, 50 dump cars from the Kilbourne & Jacobs Co.; Boston & Maine, 20 Pullman passengers, and the South Side Elevated, 30 passengers from the American Car & Foundry Co. The American Locomotive Co. is building 15 locomotives for the Central New England, the Baldwin Works five locomotives for the Midland Valley and the Locomotive & Machine Co., of Montreal, 16 locomotives for the Intercolonial.

Among the companies in the market for equipment are: Brooklyn Rapid Transit, 150 passengers; Public Service Corporation, of Brooklyn, 150 electrics; Central & New Jersey, 3,000 cars; Western Steel Car & Foundry Co., 500 to 1,000 box cars; Chicago, Burlington & Quincy, from 1,000 to 1,500 gondolas and hoppers; Grand Trunk, for 2,000 freight cars; St. Louis, Rocky Mountain & Pacific for six passengers, seven cabooses, 50 flats, 100 box, 200 gondolas, besides eight locomotives; Chicago, Lake Shore & Eastern for 800 gondolas and 200 flats; Philadelphia & Reading for over 6,000 freights; Duluth, Missabe & Northern for 30 locomotives; and Southern for 90 locomotives.

The following lines are building equipment at their own shops: Louisville & Nashville, 675 box cars, 36 cabooses, 20 passengers and 12 locomotives; Mexican International, 175 coal cars; Chicago, Milwaukee & St. Paul, 700 gondolas and 300 flats; Nashville, Chattanooga & St. Louis, 100 box cars and 100 gondolas; and Atchison, Topeka & Santa Fe, 10 switch engines.

The Swedish Iron Trade in 1904.

From General Director Richard Akerman, of Stockholm, Sweden, we have received the following statistics of the production of iron ore, pig iron, etc., in Sweden in 1904, in metric tons:

Products.	Metric tons.
Iron ore	4,084,647
Pig iron	528,525
Blooms from pig iron in charcoal hearths	189,246
Bessemer ingots and castings	78,577
Open-hearth ingots and castings	252,832
Crucible ingots and castings	1,162
Blister steel	951
Bar iron and steel	181,775
Nail and wire rods, band iron and steel	102,976
Otherwise shaped iron and steel in bars	9,020
Plates (not including sheets)	16,331
Tube blocks, hollow blooms and billets	23,594
Coal	320,984
Number of blast furnaces in blast	133
Average daily production per furnace, metric tons	15.10
Average time per furnace in blast, days	263

As compared with 1903 the above figures show an increase in the production of iron ore of 406,806 metric tons, in pig iron of 21,700 tons, and in open-hearth steel ingots and castings of 19,954 tons. Bessemer steel ingots and castings show a decrease of 5,652 tons in 1904 as compared with 1903.—[Bulletin American Iron and Steel Association.

Marine Machinery Outfits.

A number of very complete outfits of marine machinery (steam) for distribution to all parts of the world are now nearing completion at the shops of the Marine Iron Works, Chicago. One is for Burma, British India, which is the ninth outfit built by this company for that district. A fore and aft compound outfit is for shipment to Cuba and duplicates of it go to Nicaragua and Mexico. The company is also building heavy service tug boat machinery (fore and aft compound) for a Boston company operating on the Gulf of Mexico. A similar outfit in smaller size was recently shipped to New Orleans for installation in the new coast survey boat, being built for the United States Engineer Corps.

Two river steamers to be shipped in the "knock-down" to Bolivia, and a single screw deep-water boat for similar shipment to the same country are also in course of construction.

A four-cylinder inboard surface condensing outfit for the new 100 ft. steel steamboat is being built at Frontera, Mex., by the Bushnell line (The Tabasco-Chiapas Trading & Transportation Co.) that is nearly a duplicate, but larger, of one of the last shipments made to it by this company.

For the Yaqui river in Western Mexico, which is one of the difficult streams to navigate, the Marine Iron Works has just received an order for a very complete outfit for a vessel to ply in the merchandising and similar service.

These, with some fore and aft compound condensing machinery for Montreal, Canada, and single screw outfits for the Amazon, together with a fair amount of work for nearby customers, make the Marine Iron Works shops quite busy. It reports also a gratifying amount of work in sight for the winter months.

Death of Luther Allen.

Luther Allen, a prominent business man and financier of Cleveland, died Sept. 23, after an attack of appendicitis. In his early career he held a number of important railroad positions, but in 1874 entered the employ of the Society for Savings, where he remained until 1882, then resigning to re-enter railroad work. Later, for a time, he was treasurer for the Society for Savings, a position he resigned in 1886 to become secretary and treasurer of the Globe Iron Works Co., now part of the American Shipbuilding Co. He was a member of the executive committee of this corporation and was interested in a number of other large enterprises.

Retires from Corporation.

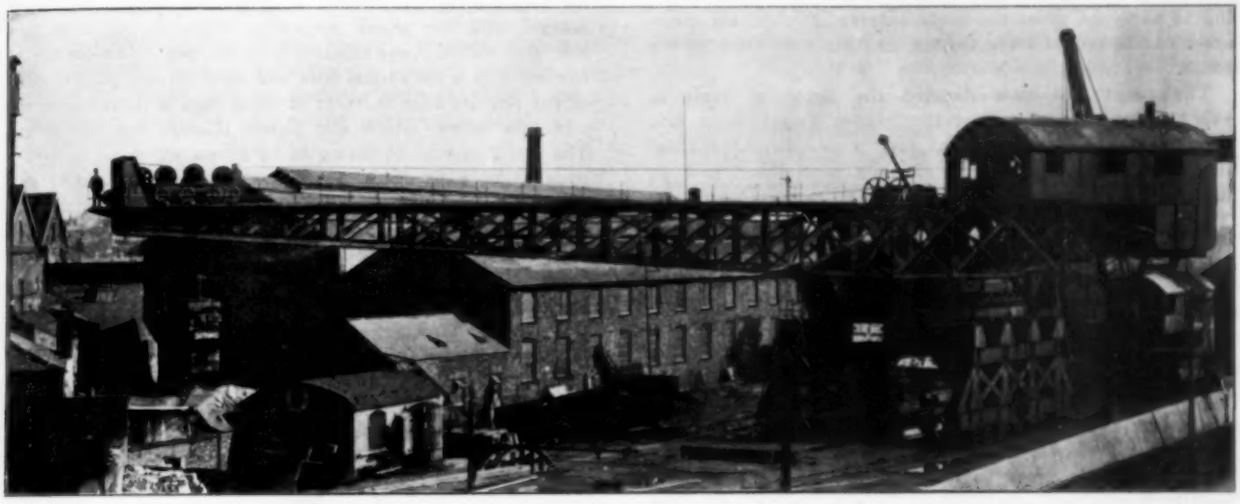
(Special Telegram.)

NEW YORK, Sept. 27.—Robert Bacon, who becomes first assistant secretary of state Oct. 1, has resigned as director and member of the finance committee of the United States Steel Corporation, and will be succeeded by George F. Baker, president of the First National Bank, New York, and identified with Morgan interests.

New Record at Ensley.—The Tennessee Coal, Iron & Railroad Co. has established what is believed to be the world's record at Ensley Steel Works. At Ensley, Sept. 20, five heats, or 202,142 tons of steel, were tapped from one 50-ton open-hearth furnace. This furnace was using coal gas for fuel, and the metal used in the charge was hot pig, first treated in a Bessemer converter.

A 40 TON BLOCK-SETTING "TITAN."

Heavy handling devices are always of interest to engineers, and many unique designs have been brought out from time to time to meet special requirements. In the construction of piers, breakwaters, bulkheads, etc., it is frequently necessary to set very heavy stone or blocks of concrete. For this purpose the crane illustrated in the accompanying halftone was designed and constructed by Messrs. Cowans, Sheldon & Co., Ltd., of Carlisle, England, for the work at Table Bay Harbor. The crane is carried on a substantial base, which travels on two parallel lines of double track. There are 32 wheels, 16 on each side and 8 on each track. The wheels have cast iron centers with steel tires shrunk on. The outside diameters of each wheel are 2 ft. 6 in., and the steel axles are 6¾ in. in diameter. The gauge of each of the double lines of railroad is 3 ft. 6 in., and the two tracks are located 33 ft. apart from center to center. The entire structure is carried on 128 volute springs, four to each wheel.



A 40-TON BLOCK-LIFTING TITAN.

The boxes for the axles, together with their supporting brackets, are made of cast iron and are secured to the underside of the bottom girders. Upon these bottom girders are arranged two very heavy trusses which support the table upon which the crane rotates. The outer track for supporting the crane is 32 ft. in diameter and is a broad faced steel track. A similar track is arranged on the bottom of the girder carrying the cantilevers. Between these two tracks there is introduced a series of cast steel rollers.

The cantilevers are 175 ft. long and 11 ft. deep in the center. The construction is a lattice truss with wind bracing built on the side. Upon each of the cantilevers is located a rail of 100 lb. to the yard upon which the crane carriage runs. For balancing the load a ballast box, containing the necessary amount of ballast, is placed under the tail or short end of the cantilever. All of the machinery for operating the crane, including the boiler and engine, are also located upon the tail end of the cantilever.

The power is supplied by one pair of engines, 12 x 18 in., with steam at 80 lb. pressure. The boiler is vertical, 6 ft. in diameter and 12 ft. high. The different movements are controlled by suitable brakes and clutches. All of the levers for controlling the mechanism are grouped together at the front of the operating house.

The crane is arranged for the following movements: Lifting or lowering of the load, racking of the carriage in or out along the cantilevers, revolving the entire cantilever about a vertical axis and the traveling of the entire machine upon the two supporting tracks.

The drum for the main hoisting rope is 6 ft. 10 in. in diameter by 5 ft. 2½ in. face, and is capable of taking all of the cable without overlapping. The main hoisting rope is 4 in. in circumference and 134 ft. long. The racking ropes, four in number, are 3½ in. in circumference, two of them being 120 ft. long each, and two 237 ft. long each. The grabbing rope is 4½ in. in circumference and 260 ft. long. All of the heavier gears are cast iron and the pinions are cast iron. Most of the gearing is machine cut from the solid. The height from the top of the supporting rails to the top of the rail on the cantilever is 36 ft. 3 in., and the over-all height of the crane is 51 ft.

The traveling carriage covers an area from a 20 ft. minimum radius to a 116 ft. maximum radius. The specifications call for a speed of 8 ft. per minute when lifting its full load. Under test the crane was capable of lifting 16 ft. per minute under full load, and with a load of 10 tons the specifications call for 50 ft. per minute, while under test the machine developed 70 ft. per minute. In like manner all of the speeds called for in the specifications were either equaled or exceeded. As the authorities at Table Bay Harbor were not ready for the crane it is at present being used at Tynemouth for the construction of the pier there.

Extensive Mining Development.—The Oliver Iron Mining Co. is negotiating for the purchase of a very heavy bill of equipment to be delivered in the spring of 1906. It will involve the expenditure of between $750,000 and $800,000, and includes 65 locomotives and 25 steam shovels of the 85-ton class. The new equipment is required largely by reason of the extensive mining development being made in the Western Mesabi. The Canisteo and Holman properties will enter the shipping lists next season over the new extension of the Duluth, Missabe & Northern road from Alborn to Bovee. Other mines will be developed later that will add to the shipments from that district.

IMPORTANT DECISION

Affecting all Mineral Leases of the State of Minnesota—Dunn Vindicated.

(Special Correspondence.)

DULUTH, Sept. 25.—A decision has been made by the district court in the case of the State of Minnesota vs. Mabel Evans, et al. This was ostensibly to set aside her title to certain mineral lands just north of the city of Virginia, Mesabi range, called the "Virginia Sliver," on account of fraud; but into the case was injected a far more important matter—no less than the claim by the State that all its mineral leases were invalid as having been granted in violation of the constitution. This, if sustained, would have meant the confiscation of millions of dollars' worth of property leased by the State under the law passed for the purpose and accepted in good faith by private parties. In attempting to carry its point the State officers attacked the character of the recent state auditor and the land clerk of his office.

The court has now decided the State at fault in every point. It rules that the Mabel Evans lease was legal, that the State mineral law is constitutional, and that the land clerk directly charged with fraud had no interest in the land and was not at fault in any way. The entire case, so far as the State's contention stood, rose from an attempt of certain politicians in the Republican machine to defeat for election as governor the former state auditor, Robert C. Dunn. Dunn was a persona non grata to the then reigning element in the State, including the governor and his appointees, and it was a bitter pill to them when he was nominated for the governorship. The state examiner was made to dig through his books and to root out every transaction that by ingenious effort could be colored so as to appear questionable. The lease given to Mabel Evans was one of these —Miss Evans was a relative of Dunn's deputy land clerk —and it was the occasion of a tremendous howl throughout the campaign.

In order to justify its claims and uphold its position, the State was compelled to bring this case to trial later, and it did so. Now the decision is sweepingly in favor of the defendants, justifying them, both directly and indirectly. In the trial of the case the State showed a lamentable and pitiable ignorance of mining matters and mining law. Under its own attempted stipulations the State would have been ruled out of the case at the start but for the willingness of the defendants to admit some of its basic claims, which they did for the reason that they were prepared and willing to go ahead then rather than to wait till it had so amended its claims as to have a standing in the courts. The probability is that the case will be carried to the supreme court, in order that the question of constitutionality may be settled for all time.

COKE PRODUCTION BREAKS RECORD.

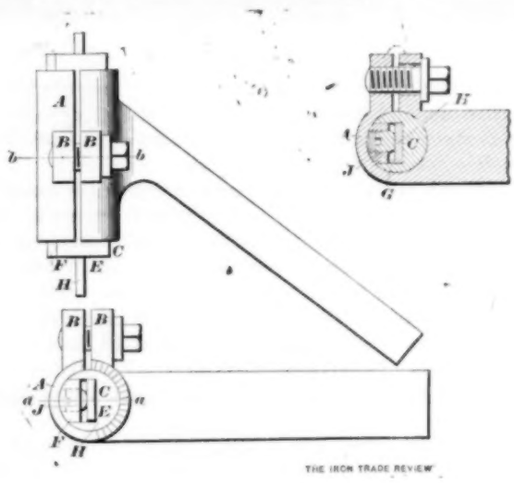
The production of coke in the Connellsville regions for 1905 is estimated by the Connellsville *Courier* at between 15,000,000 and 16,000,000 tons, breaking all records. The output for the two sections has averaged more than 1,000,000 tons per month and a still heavier demand is anticipated during the closing months of the year.

About 24,000 ovens, it is estimated, are in operating condition in the Connellsville region proper, and of these more than 21,000 are making coke, running on an average six days a week. In the lower section practically all of the 7,000 ovens are being operated. Shortage of cars, due to congested traffic conditions, has forced the stocking of some coke, but the Frick and other companies are having heavy steel cars delivered direct to the district to remedy this trouble. The building of the big Frick plants will force the enlargement of the B. & O. yards at Connellsville.

The average price of coke for the year, the *Courier* estimates, will be $2. Some small concerns in the extreme lower district are selling below $1.50, but the Connellsville producers are asking $2 for furnace and promising an advance for late 1905 delivery and 1906 contracts.

A NEW TOOL HOLDER.

Charles W. Phillips has invented some improvements in tool-holders, which are illustrated herewith. Referring to the illustration, A denotes a cylindrical casing which is formed with the shank projecting from an angle in one side and with a longitudinal slot at the top. This casing is formed with a cylindrical bore and upon its top at each side of the slot are lugs D. One of these lugs is threaded to receive the screw, which also passes through the other lug. The screw causes the casing to be drawn up so as to clamp upon a chuck C. This chuck is of a cylindrical form and of slightly less diameter than the diameter of the bore. It comprises two jaws, E and F. The jaw E is fomed with a rectangular recess G, into which the jaw F telescopes. In order to guide the jaw F a slot is formed in one side of the jaw E, which is adapted to receive a pin projecting from the jaw F. A machine tool H, of any suitable form, which is to be held by the device, is clamped in the recess G by the jaw F. In order to permit tools of different sizes to be clamped, the jaw F is provided with a series of set screws A, which may be adjusted into and threaded out of apertures in the jaw, in order to vary the thickness of the latter. The



TOOL HOLDER.

jaw E may be formed with a recess having a V-shaped bottom instead of a flat bottom, in order to accommodate tools of circular cross section.

In operation the tool to be inserted is placed in the recess G of the jaw E and beneath the jaw F. The set screws in this latter jaw are adjusted so that the outer face of the jaw F will project slightly beyond the curvature of the jaw E. The two parts are then placed in the bore of the casing A and the latter is clamped by means of the screw. This causes the jaws to be clamped upon the tool. The shank is inserted in the tool post of the lathe or other machine in the usual manner.

TOOLS AND FORMERS FOR STEAM HAMMERS.*

BY J. B. ANDERSON.

Tools and formers for steam hammers, as well as other power machines, are things that keep the foreman smith busy in the shop and out of it. When you have started to devise some tool or former, especially if it be a complicated one, you cannot always leave it in the shop over night with those that you have there before; it is bound to follow you home and sometimes get in bed with you. I have just completed one of this kind for the bulldozer, to bend right and left hinges in the same former.

The steam hammer is the universal machine in the blacksmith shop and can be utilized for more purposes than any other machine in the shop. While it may not be, and is not, as well adapted for some work as a machine especially built for the purpose, in case you have no large forging or upsetting machine, it can, with properly constructed tools and dies, be used for doing much of the work that is done in this machine to good advantage. Again, if you have no bulldozer or bending machine, you can do most all of your bending with it. The same is true with the punch, shears and many other machines in the smith shop.

The above mentioned machines are indispensable and should be, and I think are, in every shop of any importance whatever, but the steam hammer is more important than any of the other machines that you may have, because any work that cannot be made in the above mentioned machines must necessarily be made at the good old hammer. Consequently you should be well provided with good tools and formers for your hammers for the different classes of work to be done.

What I mean by good tools is not necessarily the most expensive or complicated, but tools that will do the work properly, and cost the least to make. I do not believe in making complicated formers if it can be avoided, as they are expensive both to make and keep in repair. (That they persist in keeping a fellow awake at night may have something to do with my prejudice).

I find it more convenient when I have work to do that cannot be finished in one former without too much trouble, to have two and sometimes three formers to complete the job. In most cases it will make a better forging and nearly as economical, providing you do not have to take the second heat on account of it.

If you are well supplied with hammers you can keep a hammer on one job until you finish the number of pieces required. For heavy work, I think the formers should be made so they can be fastened solid to the hammer. If you are limited in number of hammers and for light work, I prefer portable formers than can be used on the hammer die without removing the die from the hammer. Such formers are handy to use and easy to get the forging out of former, and then it gives you a chance to work at different jobs at the same time.

Now in getting up dies and formers there are two things always to be borne in mind: First, you should know the quantity to be made with that former; if you have an unlimited number to make, then you want the best die or former that can be made for the purpose; if you have just a limited number to make, you want a former just the same, for it does not take a large order to pay for a former of some kind, but you make it accordingly. Second, and just as important, your dies and formers should be so constructed, whether it is an expensive or cheap one, so that it will do the work properly without tearing, gaulding or in any way injuring the metal, for it is just as easy to ruin the material in this way as it is with improper heating and welding. I am afraid that many in their anxiety to get out work cheaply and to be able to say it was done with one revolution of the machine, or so many blows with the hammer, lose sight of this important question.

There are many good pieces of metal that have been made almost useless by being stretched or pulled in the corners, until many times it does not contain one-half its original strength, in trying to make too many square bends with one revolution of the machine or one or two blows with the hammer, whichever the case may be, with formers that are not fit to do it with. The first cost of labor may be reduced somewhat this way, but the cost of repairs and waste of material will be that much heavier, and such work should always be avoided. It is a dangerous practice, and is liable to cause trouble, because in designing, that piece is calculated at so many square inches at such a tensile strength, when in reality it only has as much strength as a bar half its size.

*Paper presented at the convention of the National Railway Blacksmiths' Association, Cleveland, Aug. 15-17, 1905.

Steel and Iron Hardening Metal.

Under the head of steel and iron hardening metals, Dr. Joseph Hyde Pratt of the United States Geological Survey discusses the production, uses, and sources of supply of all the minerals mined commercially for these metals. The metals named in the order of the importance of their production and use for steel hardening purposes are nickel, chromium, manganese, tungsten, molybdenum, vanadium, titanium, cobalt and uranium. As manganese is produced in such very large quantities for use in the purification of steel, its production is treated separately in a Survey report on manganese.

Only within the last two years have these metals been prepared commercially as metals; they were formerly put on the market almost exclusively as ferro-alloys. With the introduction of the alumino-thermit and other processes for reducing oxides of the metals, it became possible to obtain many of the so-called rare metals in the free state, and thus many of the steel-hardening metals are now on the market both as metals and as ferro-alloys. Doctor Pratt describes the Goldschmidt or alumino-thermit process, the Rossi method, and the Greene and Wahl method of preparing metals and ferro-alloys.

The total production of steel-hardening metal ores or concentrates produced in 1904 amounted to 945 short tons, valued at $259,620, including the production of rutile valued at $7,000. Over three-fourths of this product came from tungsten ores. The states producing these ores, in the order of the value of their production, together with the metallic ore mined, are Colorado (tungsten, uranium, and vanadium), Arizona (tungsten and molybdenum), California (chromium), Washington (molybdenum), Missouri (nickel and cobalt), and Virginia (titanium).

Newfoundland Ore Shipped to England.—The first Wabana, Newfoundland, ore received on the Northeast coast of England was recently unloaded at Connal's wharf, Middlebrough, for the Northeastern Steel Co., Ltd. The cargo amounted to 4,500 tons and was obtained from mines owned by the Nova Scotia Steel & Coal Co. and the Dominion Iron & Steel Co., both Canadian concerns.

Shipments to Japan.—The American Bridge Co. has shipped the first consignments of the contract placed with it by Japan. In all 7,400 tons of bridge material are to be sent. It will be carried overland to Tacoma, Wash.

STOCKPILES VANISHING

And Heavy Work all Winter Insured—Lake Superior Iron Mines.

There will not be much ore left in stock piles in Marquette county at the close of navigation. A number of piles that have stood for many seasons have been removed this year or greatly reduced in size during the summer. All the companies have been rushing shipments. Every train crew along the range has put in considerable extra time this season, and in many cases it has been necessary to work Sundays in order to fill orders and get the boats out of dock. The Cleveland Cliffs Co. has this summer cleaned up the piles that have stood at the Jackson mines for many years; some of these piles have been in surface for 12 to 15 years. Other stocks owned by the company at Ishpeming have gone. The Oliver Co. has got rid of most of the Volunteer pile, and is busy at some of the old stocks around Negaunee and Ishpeming. The removal of these old piles is a cause for congratulation on the part of citizens and miners, as it insures big work all winter and the reconstruction of the mountains of ore on surface.

Corrigan. McKinney & Co. have begun work on the old Kimball location, near Crystal Falls, and will carry on an extensive exploration there. The property was one of the early finds of the range and was neglected till a few years ago, when Dr. Kimball took it up and proved the presence of iron. He turned it over to the present holders and they have been preparing to do business there for some time.

The Austine mine of the Cleveland Cliffs Co. on the Swanzey range has begun shipment of ore after stocking it for a year or so. It is the company's first property in the district, but is not alone, as the same concern now has the Princeton and the Tod-Stambaugh lands there. Extensive exploration is to be carried on along the range.

On the Baker property, at Iron River, Corrigan, McKinney & Co. will sink a shaft, on the Tully property. They will start a diamond drill, and when ore is located and developed sufficiently they will sink a shaft there also. Jas. Corrigan, of Cleveland, has just visited the two properties, which are near Crystal Falls, on the Menominee range, a very favorite location for this company.

The Oliver Iron Mining Co. will soon be in the market for a large equipment of tools for its new shops at Hibbing, Minn., and Ishpeming, Mich., where it is now building large and commodious machine shops. It is the intention to have these shops of sufficient capacity to make any required repairs on steam shovels and locomotives. The company is rapidly standardizing its equipment, on all ranges, but this is a work that takes much time and labor. and cannot all be done in a year or two.

A Duluth paper publishes the following as to the so-called "Cuyuna range," west of Duluth, which has been persistently boomed of late in some Duluth papers. *The Iron Trade Review* referred recently to this booming of a so far undetermined and unattractive district. The paragraph is as follows:

"Relative to a report in the Duluth *Herald* that he had discovered an immense body of ore on the Feigh property on the Cuyuna range, Mayor M. L. Fay, of Virginia, says he considers it misleading.

"'I am now putting down the first hole on the Cuyuna range on the Thomas Feigh lands, in 46-29,' said he. 'The hole has cut about 50 ft. of surface, going into a slaty taconite, in which we have thus far drilled from 25 to 30 ft. I am not booming the Cuyuna range, and do not believe that up to the present time any merchantable ore has been found there, and believe that the write-ups accorded the new range to date are misleading.'

"Mr. Fay is exploring the property under a 20-cent royalty option providing for a minimum output of 100,000 tons a year. The drill work on the property is being done by Cole & McDonald."

But in connection with this matter, Mr. Cuyler Adams, who is the father of the range, says that on the "South range" the shaft of Pickands, Mather & Co., on section 8-45-29 is in good ore, and that they have a considerable quantity shown up that is of fair shipping grade; also that he has a hole averaging better than 60 percent iron for some depth, and the Northern Pacific road has a hole in 3-45-29 that is good ore. So far no arrangements have been made as to shipping this Cuyuna range ore, but it is understood that Mr. Adams and the Northern Pacific road have an understanding that when he or any other party is able to show sufficient good ore, it will build docks at the head of the lake to handle the product, and that it will give as good a rate to deep water as any Minnesota ore gets. That would mean 80 cents per ton, though the distance is greater than from the Mesabi range to Duluth.

The Wisconsin Steel Co. has been organized at Baraboo with an authorized capital of $1,000,000 to prospect the Baraboo range and to mine after ore is found. The company includes Messrs. W. D. Hickman, of Chicago; B. K. Miller Jr., of Milwaukee, and J. A. McCormick. The report that it is an offshoot of the United States Steel Corporation is unfounded, but the company may have some connection with the International Harvester Co., which is now mining at Baraboo, in the only mine that has been active there. This is the Illinois, and it is now producing about 700 tons a day. Extensive exploration and development during the summer is increasing its reserves, and it is now very evident that the statements of large tonnage therein were not optimistic.

Messrs. D. L. Fairchild, T. A. Merritt and W. A. Barrows Jr., are to explore the old Mallman mine, east of the Duluth & Iron Range road, on the Mesabi range. This was found by D. E. Woodbridge some years ago to have some 350,000 tons of good ore in sight, but the failure of the company for which he was working stopped the work with the exploration not entirely completed. It is now proposed to complete, and, if enough ore is found, to build a railroad five miles from Mesabi station.

The shaft that must be sunk on the old Baker property, near Crystal Falls by the firm of Corrigan, McKinney & Co., of Cleveland, is to be a large one, and is to go down through 160 ft. of sand before ledging.

A new Mesabi range mine is the Hector, which is to ship about 25,000 tons this year. It has shown up some 50,000 tons in all, and the rest will be taken out in 1906. The old Kanawha has also shown up some 50,000 tons of ore beyond what has been mined out, and this property is to be reopened.

Tariff Revision Favored.—At the annual convention of the Canadian Manufacturers' Association, which was held in Quebec, commencing on Sept. 18, about 300 members were in attendance. The most important feature was the report of the tariff committee reaffirming the position taken at previous conventions in favor of tariff revision with a view to increased protection and the diversion of surplus trade to British sources. The anti-dumping regulations were indorsed and the recommendation made that special facilities should be provided by the customs department for the detection of foreign-made goods forwarded through Great Britain to receive the benefit of the British preference. C. C. Ballantyne, Montreal, was elected president and Henry Cockshutt, Brantford, Ont., vice president. An increase of membership during the year from 1,511 to 1,839 was reported.

ELECTRIC SMELTING

Will be Superintended by Dr. Heroult at the Canadian Soo.

TORONTO, CANADA, Sept. 25.—Dr. P. L. T. Heroult, technical director of the French Electro-Metallurgical Society, was in Ottawa this week in connection with the approaching experiments in the electric process of smelting iron ore and making steel to be undertaken at Sault Ste. Marie for which the Canadian government has appropriated $15,000. Dr. Heroult has undertaken to superintend the experiments and Dr. Haanel, Dominion Superintendent of Mines, will be associated with him in the work. These experiments are the outcome of the report of the commission of which Dr. Haanel was chairman, which visited Europe to investigate the subject. After examining the situation here in regard to raw material and water powers suitable for the production of electric energy, Dr. Heroult expressed the opinion that in the course of ten years Canada will have become a great metallurgical country. The Dominion would have a larger iron industry than any other country, as iron could be produced at a cheaper rate than elsewhere. His opinion was based on the fact that in Ontario and Quebec provinces, where there are immense bodies of magnetite, hitherto undeveloped because they could not be economically treated by the ordinary processes, there is water-power in abundance, which would give all the advantages of cheap fuel. Dr. Heroult thinks that, under favorable conditions, pig iron can be made for $10 per ton, while steel will cost only $4 more per ton to produce. He expressed himself as greatly impressed with the extent and value of the natural resources of Canada in regard to iron production, estimating the quantity of iron ore in sight in Canada, as three times that of Sweden, the latter country having sufficient to supply the markets of the world for one hundred years. Dr. Heroult has undertaken to repay the Canadian government the $15,000 advanced for the experiments at Sault Ste. Marie out of the proceeds of the sale of licenses in Canada for the use of the electric process.

The demand for iron and steel products continues to show great activity, notwithstanding that the latest trade returns covering the first two months of the fiscal year and terminating Aug. 31, show a continued falling off in the general export trade of the country. That this showing in no way reflects the condition of the iron industry, is due to the vastly increased requirements for home consumption in nearly all lines, and more especially in building and railway construction. This has been a phenomenal building season, both in Toronto and Winnipeg, as well well as in smaller centers, while the present and prospective amount of railway building is a great stimulus to the market. The bumper harvest of the West, which is taxing the resources of the railways to the utmost, may be depended upon to stimulate immigration and settlement, and as a consequence to necessitate large increases in rolling stock to meet future requirements.

The Canadian Pacific is meeting the situation by what is said to be the largest order ever given by a Canadian road, necessitating an expenditure of over three millions. It embraces 25 parlor, sleeping and dining cars, 90 passenger coaches and 3,000 box, flat, refrigerator and cattle cars, all of which will be constructed at the Angus shops, Montreal. The company has also given out contracts for the building of 75 new locomotives. The transcontinental traffic has been heavier this season than ever before.

Official information from the Dominion Iron & Steel Co., confirms the statement recently made that the Grand Trunk Railway has placed an order for steel rails with the United States Steel Corporation, on account of being unable to secure delivery within the time specified from the Dominion Iron & Steel Co., which received the order in the first instance. The order to the United States Steel Corporation was for 5,000 tons—not 10,000 as stated. The remaining portion of the original contract for 25,000 will be filled by the Dominion Co.

J. H. Plummer, president of the Dominion Iron & Steel Co., who was in Toronto this week, stated that the new steel rail mill was working very satisfactorily turning out rails of excellent quality, its capacity being practically only limited by the amount of steel that could be procured. Its possible output, if a full supply of the raw material were available, was probably in excess of any demand likely to exist in Canada for some time. It was now turning out from 8,000 to 9,000 tons of rails per month. Mr. Plummer, who recently recovered from a severe illness, has obtained six months' leave of absence and will take a tour abroad.

A statement of the amount paid in iron and steel bounties by the Canadian government during the last seven years gives the total at $5,204,755 which was divided among fourteen companies. The Dominion Iron & Steel Co., heads the list with $2,252,455. The next largest account is that of the Hamilton Steel & Iron Co., which has drawn $846,144. The Algoma Steel Co., of Sault Ste. Marie received $328,740.

The Keewatin Flour Milling Co., has given a contract to the Allis-Chalmers Co., of Milwaukee for machinery for a mill of 4,000 barrels capacity per day at $200,000.

The Canadian Tool Co. Ltd., has been incorporated under the laws of Ontario, with head office at Woodstock and a capital of $100,000, the provisional directors being Edwin G. Law, Joseph Stickney, Arthur J. Downing, James J. Terry and Theophilus L. Wilson.

PRODUCTION OF TIN.

Consul Williams, of Cardiff, Wales, furnishes the following statistics relating to the production and consumption of tin:

It is difficult to secure accurate statistics relating to the production of tin, but the following table, showing the output by countries for the last three years, is approximately correct:

Country.	1902. Tons.	1903. Tons.	1904. Tons.
Malay States	53,756	54,797	58,657
Banca and Billiton	18,765	20,000	14,638
Bolivia	10,150	9,500	9,200
England	3,950	4,150	4,282
Australia	3,206	4,991	5,082
Miscellaneous	350	395	384
Total	90,177	93,893	92,243

According to these figures the production of tin is almost at a standstill, and there was an actual falling off in the output during 1904. On the other hand, the consumption is on the increase, and the accepted estimate for 1904 is as follows:

Country.	Tons.
United States	38,000
Great Britain	15,898
Germany	14,832
All other countries	25,525
Total	94,755

Thus the consumption for the year was 2,512 tons in excess of the output. Ordinarily the tin consumed is lost forever, but the increasing demand and the threatened diminution of the available stock has given rise to a new industry, the detinning of tin scrap. The statistics show that the United States consumes over 40 percent of all the tin produced, and it should lead in this recovery of tin from scrap.

BRITISH NEWS NOTES.

The pattern foundry and blacksmith's shop of Marsh & Co.'s foundry works, Coventry Road, Warwick, were destroyed by fire recently. It is thought that the fire was caused by the overheating of some iron sheeting near the furnace.

A foundry building owned by Mayne & Co., iron workers, of Belfast, Ireland, collapsed recently during a severe storm of wind and rain.

The Dunderland Iron Ore Mines in Norway have just received a cargo of machinery from Middlesbrough. It is expected that the exporting of iron ore to this country will commence in the autumn.

The United States Metallic Packing Co., Ltd., of Soho Works, Bradford, has opened a London office at 17 Victoria street, London, W. C.

Statistics giving information of 108 iron masters showed that 322 furnaces, employing about 23,000 people, were in blast at the end of July, the same number as in June, and 21 more than in July, 1904.

An accident occurred recently at the Williams Linthorpe Iron Works, Middlesborough, in which almost the whole side of No. 2 blast furnace was blown out. The explosion, it is thought, occurred low down in the furnace and was probably caused by the weight of material on the top which prevented the explosive gas from ascending in the natural course. Three men were killed and several others injured.

The strike at Dorman, Long & Co.'s Brittannia Iron Works, Middlesbrough, has virtually been settled and notices affecting 800 men were withdrawn.

The Brightside Foundry & Engineering Co., Ltd., has just installed one 25-ton electric crane, electrical power now being used. The company has spent £3,000 upon a Siemens' furnace at Newhall.

A 45-ton furnace will probably be built at the Duffryn Tinplate Works, Morriston, Glamorganshire, in the near future, making the third steel furnace at these works.

J. and R. Thomas, of Walsall, Staffordshire, is preparing to blow in a new furnace to meet the increased demand for pig iron in the South Staffordshire district. The furnace will produce about 500 tons of pig iron per week.

The Steel Co. of Scotland, Ltd., has expended £33,000 during the past year on improvements to its plant. An electric crane has been installed at Blochairn and an extension added to the electric power plant at Hallside.

George Richards & Co., Ltd., of Broadheath, near Manchester, are engaged in constructing a large double planing machine for use on turbine frames, for the J. I. Thorncroft & Co., Ltd. It will plane work up to 25 ft. long, 10 ft. wide and 8 ft. deep. The machine is 31 ft. 6 in. long and weighs 50 tons, the base end being in four sections of 7 ft. and one of 3 ft. 6 in.

G. S. Withinshaw, of G. S. Withinshaw & Co., and the African Tool Co., Cape Town, recently arrived in England.

J. & F. Pool, Ltd., has been registered to carry on the business of metal perforators, wire weavers and workers, wire drawers, tinplate workers, etc. The first directors are F. Pool, J. Bickle, F. R. Pool and J. G. Pool. The registered office is Copper House, Hayle, Cornwall. The company is capitalized at £7,000.

The Wright & Butler Lamp Mfg. Co., Ltd., Birmingham, incorporated in 1892, until recently in voluntary liquidation, has been reconstructed and will be known by the shorter name of Wright & Butler, Ltd. The company is capitalized at £20,750, and will continue the business of lamp and stove manufacturers, brass and iron founders, chandelier manufacturers, engineers, etc. The first directors are J. E. Sheldon, A. J. Ash, M. Henrick, J. W. B. Wright, C. Butler and T. Cumberland.

D. Fanshaw & Co., Ltd., have been registered with a capital stock of £10,000 to carry on the business of iron, steel, tinplate and machinery merchants, founders, engineers, millwrights, machinists, etc. D. Fanshaw is the managing director and the registered office is 7 Chapel street Salford, Lancs.

The Graham Morton, Ltd., has been registered with a capital of £125,000, to acquire the business of Graham Morton & Co., Ltd., incorporated in 1898, now carried on at Pepper-road Works, Hunslet, Leeds. The company will carry on the business of mechanical, gas, electrical, mining and general engineers, contractors, machine and engineering toolmakers, etc. The first directors are M. Graham, J. Morton and E. Gray, of Grayscourt, York.

Cundall, Sons & Co., Ltd., have been registered with a capital stock of £25,000 to carry on the business of manufacturers of printing machines, paper-folding machines and oil and gas engines, general engineers, ironfounders, etc. The first directors are W. D. Cundall, of Ashdowne, Shipley; H. C. Cundall, of Baildon Royd, Baildon, and T. G. Mylchreest, of Thorner, near Leeds. The registered office is the Airedale Iron Works, Shipley.

The British Metallic Roofing & Construction Co., Ltd., has been registered with a capital stock of £3,000. The registered office is Croft Road, Eaglescliffe, Durham.

The seventh annual meeting of the shareholders of the Richard Hill & Co., Ltd., was held Aug. 29 at the Newport Wire & Rolling Mills, Middlesbrough. A number of orders have already been booked for the ensuing year with indications that a good dividend will be paid that year.

The Moss Bay Iron & Steel Co., Ltd., held its annual meeting recently at Workington, Cumberland. It was stated that the reduction in the dividend from three to two percent was due to the severe competition in steel rails from the Continent and the United States.

The Sheffield Forge & Rolling Mills Co., Ltd., held its annual meeting in Sheffield, at which time the gross profits for the year were stated at £8,248 6s. 9d., with a net profit of £7,667 2s. 9d. A dividend of five percent was declared.

The Workington Iron Co., Ltd., recently held its annual meeting at Workington, Cumberland. A dividend of 8¾ percent has been paid during the year. It was stated that the company is adapting a part of its plant for the manufacture of ferro-manganese.

James Maxwell, proprietor of the Clydesdale Iron Foundry Co., of 210A Upper Thames street, London, E. C., died Aug. 28 at his residence at Harlesden, N. W., aged sixty-seven years. Mr. Maxwell went to London some 35 years ago from Falkirk, where he had been a foundry manager, and with Mr. Thomson became joint partner in the Clydesdale Co. He was a man of broad culture, the most genial disposition and of wide popularity among those in the trade. He is survived by a widow and five daughters.

Charles Perkins, of Carham Hall, Northumberland, died recently from injuries sustained in a motor car accident. He was the proprietor of the Birtley Iron Works, and was one of the directors of the Consett Iron Co., Ltd., and the Associated Consett Spanish Ore Co., Ltd.

Ernest Arthur Oxley, steel merchant, of Rotherham, York, died recently at the age of 28.

The death occurred recently of E. Skinner, of Ranskill, Retford, at the age of 74. Mr. Skinner was the founder of the well known firm of Skinner & Johnson, tool manufacturers, Ranskill.

J. H. Hunt, one of the proprietors of the Chillington Tool Foundry, Wolverhampton, Staffordshire, died recently through injuries incurred in a collision while cycling near his home at Penn Fields, a suburb of Wolverhampton. Mr. Hunt died about three hours after the accident.

The death is announced of R. Baker, for many years head of the firm of J. Barker & Sons, Phœnix Foundry, Millwood, Todmorden.

A NEW STEAM TRAP.

The Youngstown Steamtrap Co., Pittsburg, has recently placed on the market a steam trap which is shown in the accompanying illustrations. Fig. 1 shows the trap complete, Fig. 2 is a longitudinal section, and Fig. 3. is a sectional end view of the trap. The operation of the trap is as follows: The condensation passes into the pivot pipe U, and thence into the receiving vessel through the ports R and P. When the receiving vessel is filled with water the trap rocks from the curved arm Q extending from the base, on which it rests while filling, to the short standard I at the other side of the base. The water is discharged from the trap through the curved discharge

FIG. 1.—YOUNGSTOWN STEAMTRAP.

pipe on the inside of the trap and through the pipe J, Fig. 3, at the end. While the trap is rocking from the arm to the standard it moves the ball valve L from the port M which allows the water to pass from the discharge pipe into the pivot pipe and to discharge at J, the end of the pipe.

In discharging, before the trap reaches a horizontal position, the ball, F, Fig. 2, rolls from its position at the end of the trap at E to the middle of the trap, thus giving the water end the aid of the counterweight to enable it

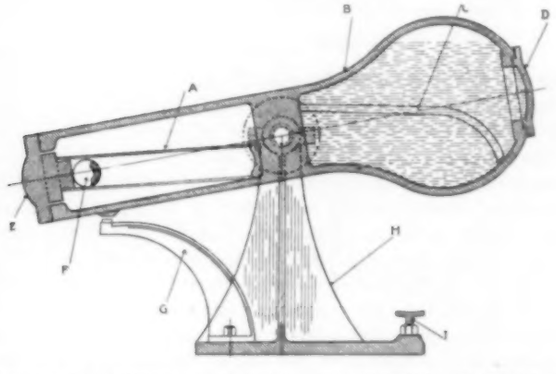


FIG. 2.—LONGITUDINAL SECTION, YOUNGSTOWN STEAMTRAP.

to discharge. When the water has all been discharged from the trap, the balancing being heavier than the water end, causes the trap to rock back to its original position for filling, the ball F rolling back to its position at E. In case of a gush of water, the trap remains in a discharging position, thereby taking care of any sudden accumulation of water.

By placing the trap slightly above the water line it will return the water to the boilers. In the operation of this trap there is no wire drawing effect, as by this construction of the trap the ball valve is moved entirely off its seat when the trap swings on the trunions into the dumping or discharging position, thus allowing all mud, scale, or any foreign matter which may be passing through with the water, to be blown through the large discharge opening, and in this way clean the seat to receive the ball, as the trap returns to its filling position. Each time this operation is performed the ball valve changes its position and returns to its seat at a different

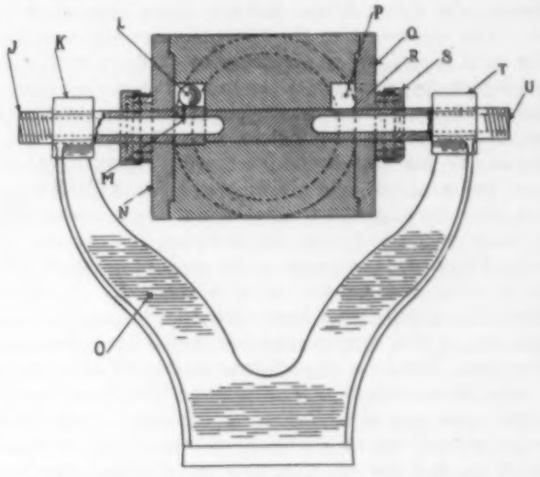


FIG. 3.—END SECTION, YOUNGSTOWN STEAMTRAP.

point on its circumferance. Thus it is apparent that it cannot become flat, cut or grooved, but will retain its perfectly spherical form. The traps are tested to 300 lb. steam pressure, and do not require special construction for different pressures. Any part may be quickly removed and it requires only a few minutes to take the whole trap apart and put it together again. It has no pins to wear out, no float to leak, sink or collapse, and there are no valve discs or seats to cut out and leak. A point of the trap to which the maker calls particular attention is the changeable counterweight in the cylinder.

A Washstand Turntable.

The Link Belt Machinery Co., Chicago, has recently brought out a washstand-turntable which was designed primarily for use in automobile garages, but will find application in many other places. The turntable, which is shown in the accompanying illustration, is of cast iron, and is supported on a ball bearing pedestal in the center, and on a series of rollers near its outer edge. It is set in a concrete pit about 12 in. deep, the walls of which are protected by an iron ring or curb. The ring is supported by the bottom of the pit, effectually preventing mutilation of the concrete edge.

A WASHSTAND TURNTABLE.

A steel tank of suitable size and construction is furnished when the concrete construction is not practicable. The turntable operates under very slight pressure, and is practically indestructible, as the parts are strong and simple. The surface of the table is concaved sufficiently to cause water to drain off to an opening in the center, to a sewer as shown. The bottom of the pit is graded so as to drain all water from the floor which may enter at the edge of the table. The table is made in three sizes, from 10 ft. 6 in. diameter to 12 ft. 6 in. diameter.

PIG IRON EXPORTS

From England Increasing — Prices Advancing and Prospects Favorable.

(Special Correspondence.)

BIRMINGHAM, ENG., Sept. 15.—A striking confirmation of the improvement in the iron and steel trade is furnished by the Board of Trade returns for August, in which these metals supply the largest of the increases, namely £411,297. It is some years since these industries took the lead. The most remarkable increase is in the value of pig iron exports, the figure being £68,275 above that of a year ago. The shipments to the United States are more valuable by £29,710, and to Germany by £18,515, with a substantial improvement under the head of steel rails and galvanized sheets. There was again great animation at the last meeting of the Birmingham Iron Exchange, and quotations for pig iron were increased. Northamptonshire forge being 43s 6d and 46s 6d. and South Staffordshire part mine from 46s 6d to 48s. There were further slight increases in finished iron, the quotation for common bars being £6 0s 0d, an increase on the week of one-half crown. An advance in Bessemer sheet bars to £4 15s 0d, has placed this quality on a level with Siemens, an experience very rare in this country, and one which has caused some comment. The local establishments are full of work, and a very busy autumn is anticipated. The high price of spelter now quoted at £27 5s 0d, has given fresh impetus to galvanized sheets, enabling makers to get from £11 5s 0d, to £11 10s 0d, although the nominal standard is only £11 0s 0d.

All the leading companies are reporting more favorably. Messrs. Pearson & Knowles, of Warrington, announce a profit for the year of £57,186, out of which they distribute £38,650 adding £10,000 to the reserve, and carrying forward £8,000. They pay a dividend of 6 percent on the preference shares and 5 percent of the ordinary.

The makers of railway rolling stock have already derived further benefit from the conclusion of peace, and some big orders have been placed, notably from Japan. Most of the leading houses have orders for quite twelve months ahead, the Metropolitan Railway Carriage & Wagon Co. Ltd., having the lion's share of the orders. Indirectly this will benefit other neighboring firms, such as the Patent Nut & Bolt Co., Smethwick, and the Patent Shaft & Axletree Co., Wednesbury, both of which are in the same amalgamation. Another department of the trade which has lately shown great activity is that which furnishes various tramway requisites, especially steel points and crossings. Several local firms have been very busy in this line, largely on account of the extraordinary enterprise shown by municipalities in equipping and extending their lines. Messrs. Hadfield & Co., of Sheffield, have just booked two large orders from the London County Council in this line. Mr. Hadfield, the head of the firm, is the president of the Iron and Steel Institute, which is shortly to hold its meeting in Sheffield. An invitation has already been issued to the Institute to pay a visit of inspection to the East Hecla Works of the firm on Sept. 27. The visitors will be afterward entertained at luncheon.

A trial cast of steel has just been made at the Cargofleet Iron & Steel Works, Middlebrough, the operations being witnessed by several officials of the firm. Seventy tons of steel were cast into ingots, apparently in a very satisfactory manner; but for the present, the ingots will be stocked, as the mills for manipulating the steel are not yet completed.

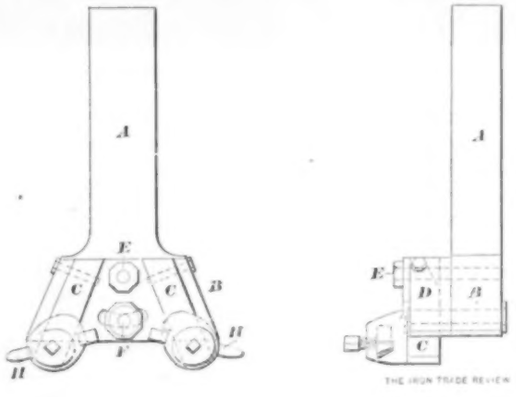
The rapid introduction of turbines into British ships promises to be a most important development in the shipbuilding trade. Messrs. Hawthorn, Leslie & Co. Ltd., Newcastle-on-Tyne are laying down most extensive machinery with the object of dealing with turbines on a large scale.

Some big bridge-building contracts have lately been given out. One highly-favored firm in this line is that of Sir William Arrol & Co. Ltd., of Glasgow, which has secured a contract from the Barrow Town Council for the proposed bridge across Walney Channel. The tender is £86,000 exclusive of land approaches. The same firm is still engaged in completing an order for 42 bridges of 150 feet span for the Soudan Railway, and seven more bridges of the same size and pattern have just been added.

An order has recently been placed with Messrs. Cammel, Laird & Co., Glasgow, by the Admiralty for 2,000 tons of armor-plates.

PLANER TOOL.

A new form of planer tool has been invented and patented by George W. Stone. The object of the invention is to provide a planer tool having two cutters extending at opposite directions from one another, and by means of which two sides of a groove or two surfaces can be planed at the same time. The shank of the tool, by means of which it is adapted to the planer head, is represented in the illustration at A. In the body of the tool B the holders C and the cutters are pivoted. These are pivoted in the usual manner in order to allow the cutters to rise upon the return



A NEW PLANER TOOL.

motion of the planer. The portion D of the body in which the holders C are pivoted is itself pivoted at the point E to the body B of the tool, so that one cutter may be raised and the other lowered, as desired. In order to hold the portion D in any position, the bolt F passes through the body and through a slot in D, the slot being concentric with the pivotal point E. The cutters H H extend through a base formed upon the holder C and are secured in position by means of set screws. When desired to plane both sides of a groove for two opposite surfaces the cutters are so adjusted through the holders as to make the desired cut upon each side, and then the planer tool may be used as a single cutter.

Old Bruce mines, a sulphide copper property, 40 miles east of Sault Ste. Marie, Ont., recently passed out of the hands of the Marquis of Queensberry into those of another English company, which now proposes to reopen the old mine and build a smelter. J. J. Case, formerly of Houghton, will be superintendent of smelter construction. Bruce mines 50 years ago was popular in England, and, for a limited time, successful.

TRAINING APPRENTICES

Discussed by the Buffalo Foundrymen's Association—New Members Elected.

On Tuesday, Sept. 19, the first regular monthly meeting of the Buffalo Foundrymen's Association, following the customary summer recess, was held in the association's new and commodious quarters, Nos. 685-687 Ellicott square.

President Lyman P. Hubbell was in the chair, with 26 members present. The following applications for membership were acted upon favorably:

American Locomotive Co. (Brooks Works), American Malleable Co., Niagara Foundry Co., Lake Erie Engineering Works, McKim Foundry & Machine Co. and F. B. Howell. The association now having a membership of 35 foundry firms, is in a very healthy and prosperous condition.

As a special feature, Mr. J. C. Bradley, general superintendent of the Pratt & Letchworth Co., gave an informal talk on "The Selection and Training of Appentices," which proved to be one of the most instructive and entertaining that the association members have ever had the pleasure of listening to. With 25 years' experience in the molding business as a basis for his remarks, Mr. Bradley entered into his subject from the practical viewpoint of personal interest in apprentices. He explained in detail the method adopted by his firm through which they select, educate and turn out many of the most proficient molders in this country. His great success in this particular work is due to the personal interest he takes in the boys in first selecting those who show an ambition to succeed and to educate them to appreciate the advantages of the molder's trade. He does not place them in charge of a molder who does everything in his power to discourage them, and takes little or no interest in them, but sees to it himself that they are advanced and educated in all branches of molding, so that when they have completed their apprenticeship they are qualified to do high class molding and earn top wages.

Those in Attendance.

F. R. Dunn, American District Steam Co.
W. E. Jewell, Acme Steel & Malleable Iron Works.
H. D. Miles, Buffalo Foundry Co.
C. M. Greiner, Buffalo Pitts Co.
T. L. Richmond, Buffalo Scale Co.
Edward Kener, Buffalo Co-operative Stove Co.
John Dobbie, Dobbie Foundry & Machine Co., Niagara Falls, N. Y.
John C. Trefts, Farrar & Trefts.
Lyman P. Hubbell, Fillmore Ave. Foundry & Iron Works.
Frederick M. Fries, Fries & Co.
H. D. Hixon, Gardner Foundry Co.
Laurence Ginther, Washington Iron Works
Henry Mullenberg, Howard Iron Works.
Joseph Kuhn, Kuhn Foundry Co.
J. J. Lawler, Lawler Iron Works.
W. H. Barr, Lumen Bearing Co.
Geo. A. Lautz, Niagara Machine & Tool Works.
Thos. J. O'Brien, O'Brien's Foundry.
William F. Pohlman, J. W. Pohlman's Foundry.
J. C. Bradley, Pratt & Letchworth Co.
E. D. McKenna, Standard Foundry Co.
E. C. Lufkin, Snow Steam Pump Works.
H. G. Walker, King Iron Works.
Geo. D. Hayes, U. S. Cast Iron Pipe & Foundry Co.
J. D. Brenan, American Malleable Co.

Production of Molding Sand.

The United States Geological Survey has just published a pamphlet showing the production of sands in the United States for 1904. The statistics show that the molding sand comes principally from Ohio, Pennsylvania, Illinois, New York, Kentucky and New Jersey in the order named. The total production for 1904 was 3,439,214 tons, valued at $2,125,370. Molding sand is now mined so extensively that it has become a factor of export trade. Its value ranges from 35c to $3 per ton.

IRON SANDS IN THE WEST.

BY DAVID T. DAY, CHIEF OF THE UNITED STATES GEOLOGICAL SURVEY.

The following matter was furnished in answer to a special request of the editor:

The United States Geological Survey has been carrying on experimental work in the concentration of the black sands of the West, a plant for this purpose having been established in connection with the Lewis and Clark Exposition at Portland, Ore., and as a result of the work which has been done upon these black sands, the following statements will be of interest to those interested in the iron business:

There are three classes of placer sands in the West that are receiving the attention of the government at the present time. In the first place, the light material discharged by the gold dredges and hydraulic mines; second, the heavy material left over from clean-ups of hydraulic mines, dredges, etc.; third, the sands of the Pacific beach. In the two latter classes of sands a large percentage of magnetite is found, and in the tailings from many of the dredges and hydraulic mines there is also considerable iron ore.

The sands of the Pacific beach in many places are particularly rich in magnetic iron ore, that is, the percentage of magnetite runs from a small percent to as much as 75 percent magnetite in special cases. At the mouths of rivers, and, in general, at the mouth of any large harbor on the Pacific coast where the north and south capes at the mouth are composed of sand, the strong gales have usually washed out the lighter quartz, forming bars and sand flats in the interior of the harbor, leaving coarse quartz and heavy magnetite to form the two points at the mouth of the harbor. This is particularly the case at Sand Island on the north side of the mouth of the Columbia river, and at Damon's Point and the opposite point forming the mouth of Gray's Harbor, Wash. Similar black sands are very rich in magnetite in the neighborhood of the mouth of Rogue river, Pistol river, and at Port Orford, Coos Bay, etc., on the Oregon coast.

Opinions have varied among mining men as to the total amount of easily available magnetite on the Pacific beach. Many observers have noted the occurrence of very black streaks of magnetite, perhaps only an inch, and at other times six or eight inches deep, and have assumed that these thin films of magnetite represented the only deposits rich enough to work. Such, however, is not the case. Deposits which can truly be said to be immense are frequent, that is to say, banks of sand of great extent well above high water mark and containing one-third of their weight in magnetite, and where the monazite, zircon, gold and platinum would pay a significant part of the cost of extraction, are frequent, so that there is, beyond question, a supply of iron ore which when separated is quite even grain and very rich in metallic iron available for the wants of the West coast. An iron master operating one of the very few furnaces which exist on the Pacific coast looked over our stock only a few days ago, with the statement that this line of inquiry was undoubtedly the most fruitful one which the government could prosecute on the West coast, and that the supply of magnetite evinced already in our work constitutes an abundant source of material for the entire iron trade of the West. With pig iron selling from $20 to $26 per ton, and iron ore which can certainly be laid down at a furnace for less than $1 per ton and running from 60 percent to 70 percent metallic iron, the prospect of iron production on the Pacific coast is certainly good.

ACTIVE DEVELOPMENT

On Famous Section 30 Will be Started and a New Railroad May be Built.

DULUTH, MINN., Sept. 25.—An option that has been taken a few days ago by Messrs. A. M. Chisholm and E. Lynch, of Duluth, on the Eaton-Merrit-Fagan, part of Section 30-63-11, Vermillion range, is to be followed at once by active development work in the search for ore. It turns out that the claims that large ore bodies had been found there was not quite true, that is, that the ore had not been definitely found, but that the presence of large bodies was considerably surmised. The work of the Section 30 Co. two years ago, when Mr. F. H. Clergue, of the Sault, was providing the funds for that exploration, showed a probability of considerable ore, and three or four drill holes cut it. There was a length of formation of about 2,000 ft. shown by this work, which was under the direction of Mr. D. E. Woodbridge, of Duluth, but the westerly hole was not in good ore. The dip of the ore body was found to be very steep, and it was discovered that drill exploration was unavailing, that to find a mine on that formation it would be necessary to sink shafts and drive crosscuts. This fact, combined with the character of ore found and the financial troubles of the Lake Superior Co., of the Sault, of which Mr. Clergue was head, led to the abandonment of his option. The property was then taken by G. N. Lonstorf, one of the owners of the land, and he has been working up to the past three or four months, with two or three drills. He attempted to dispose of the property to the Oliver Iron Mining Co., but was unable to do so at the figure the owners cared to discuss and dropped his option. It is supposed that he spent $60,000 to $70,000 in exploration. Now it is taken again, and the most famous piece of mineral lands in the West has shown itself the customary hoodoo. What the new option holders may find, it remains to be seen. It is well known that they represent the Great Northern railroad, which seems to have an option for an option. If the Great Northern finds a large mine there, a new road from the Vermillion range to Lake Superior will result, and this will follow the St. Louis river to connect with the present Great Northern line above Duluth, meaning about 60 miles of new road. But this cannot take place unless the mine is found to be a large one. It will be impossible for the Great Northern road to follow the policy it has so successfully carried out on the Mesabi, and add to its original tonnage that of a number of other mines. The matter of exploring for new mines on the Vermillion range is a very different thing from finding them on the Mesabi, and the amount of money that would be required cannot even be guessed at. The expenditure of millions might find nothing, indeed if the past history of the range is any key to its future, would find nothing, while the ore-bearing formation is defined by no such closely drawn and well-known lines as that of the Mesabi. New work on Section 30 is to be by shaft, and work has started at a point where the original exploration cut ore at a depth of about 125 feet.

With this work and what is under way at other points on the Vermillion range, it looks as though this range is to be more active in the way of explorations than it has been for some years. Six or eight diamond drills may be at work there the coming winter.

Mr. and Mrs. Andrew Carnegie will conclude their stay at Skibo Castle, Sutherland, about the middle of October. They will afterward pay a few visits in the South of Scotland before leaving for New York.

THE CHURCH AND THE LABOR UNIONS.

Mr. J. H. Webster Calls for a Definite Statement of Position.

"Where Does the Church Stand Today" is the title of a very readable article by J. H. Webster, of Cleveland, in the September number of the *Open Shop*. Mr. Webster writes with the incisiveness, clear diction, and originality that are so characteristic of all his literary work. He refers to the action of the general convention of the Protestant Episcopal Church at Boston in October, 1904, which declared that the organization of labor is essential to the well being of the working people.

One reason assigned for this recognition is that the cause of labor is the effort of men to live the life of men. On this subject Mr. Webster says: "No one can deny this axiom. What are we all doing in this world but that, whether we toil with hand or brain? But are we not, indeed, men because of the love of God that is in the individual mind and heart of each of us, and that cannot but individualize us? We work because it is our duty, spurred on by our individual conscience. The alleged purpose of the church is to win souls and fit them for heaven by observance of justice and mercy and obedience to God's laws, including the performance of duty in its highest sense. Is that not really stating in another way 'the effort of men to live the life of men'? In order to bring this about why not apply the same organization as in labor unions? Let there be a minimum wage of righteousness which shall be meted out to all, and bar from heaven those who are not within the closed shop of God's servants?"

In concluding, Mr. Webster goes right into the heart of the whole subject when he says: "The right to quit work by an individual not under a time contract, is unquestioned. If one can quit so can one hundred. When one or two go out do they proceed to create a disturbance about the shop, and by picketing its doors prevent the entrance or exit of the remaining employees? No, such a plan would be futile because it lacks physical strength which only numbers can give, and so there is a union of numbers sufficient to prevail by mob force, and a conspiracy to do violence to personal liberty and propery.

However harmless the theory of an abstract strike, it cannot in practice become effective without the conspiring together to break the law. Remove the power of the bludgeon to enforce a strike and there cannot be a successful union. There may be long periods of quiet in its history, but sooner or later it will fail, either for want of interest or by the steady growth of wisdom among its members and of their individuality. No intelligent workman will forever be content to put his superior power to earn the highest wages upon a par with his lazy, inefficient brother. Human nature is not so constituted, and cannot be so trained even by a union.

"Now, if to be a successful union the law is to be broken, by indulging in any and all manner of crime, for details of which see the daily prints, does the church still insist that it stands for unionism? The gravity of this question in our country today demands a positive, plain, unquestionable decision. The church has called herself the handmaiden of the law. The law does not, and cannot in the application of ethics to daily life uphold and sustain the labor union. Is the church, then, for or against the law? If neither, what good comes out of the church to men, and if none, is the church, like Peter, denying its Master?

"Let it pronounce quickly. The time is here. Throw sentiment and prating to the winds, and preach to men justice and naked truth."

NEWS FROM MANY INDUSTRIES.

New Buyers :—

Carl Hirsch & Sons' Iron & Rail Co., St. Louis, has been incorporated with a capital stock of $150,000.

The Shelbyville Machinery Co., Chicago, has been incorporated with $25,000 capital stock. The incorporators are: M. D. Coffeen, C. B. Coffeen and J. W. Brown.

The Iowa Malleable Iron Co., Fairfield, Ia., has amended its charter, increasing the capital stock from $40,000 to $100,000.

The Buick Motor Co., Jackson Mich., with factories in Flint, Mich., recently voted to increase its capital stock from $500,000 to $1,000,000.

The Howard Iron Works, Buffalo, N. Y., manufacturer of elevators and bolt-making machinery, has increased its capital stock from $50,000 to $200,000.

The Hough Pump Co., of Franklin, Pa., has been chartered with a capital of $50,000. Charles N. Hough, of Franklin, is the treasurer.

A charter has been granted to the Addet Novelty Tool Co., of Williamsport, Pa. It will have a capital of $50,000 and operate a works at that place. W. J. Brennan is the treasurer.

The Franklin Brass Works, Franklin, Ind., has been incorporated with $30,000 capital stock. The directors are: Wm. H. Couter, John P. Given, George T. Dinwiddle, Jesse B. Marvin and Harry C. Sheridan.

The Boonville Implement Co., Boonville, Ind., has been incorporated with $10,000 capital stock. The directors are: Henry J. Ehrhardt, C. F. W. Inderreiden and John A. Knight.

The Manhattan Stove Co., Philadelphia, has been incorporated with $100,000 capital stock. The incorporators are: Howard S. Hilt, John W. Alexander and Alfred H. Lawrence Jr., all of Philadelphia.

The Evansville Pump & Mfg. Co., Evansville, Ind., has been incorporated with $15,000 capital stock by John Pfender, Chas. E. Pfender and Philip P. Euler. The company's specialty is metal pumps.

The Lester Van Derlip Furnace Co., New York, has been incorporated with $600,000 capital stock. The directors are: Dr. J. W. Hadden, New York; Thomas Ferguson, Brooklyn; and H. S. MacKaye, Yonkers.

The Voelke Seamless Float Co., Tipton, Ind., has been incorporated with $10,000 capital stock. The directors are: Fred A. Voelke, Martha Voelke and Noah R. Walker. The company will manufacture metallic articles.

The Valparaiso Lighting Co., Valparaiso, Ind., has been incorporated with $150,000 capital stock. The directors are: Clarence H. Geish, Chas. H. Kelsey and Edward Clifford.

The Geneva Foundry & Machine Co., Geneva, Ill., has been incorporated with $5,000 capital, to manufacture metal goods. The incorporators are: H. B. Fargo, E. G. Howell and John T. Peterson.

The Connellsville Machine & Car Co. has been granted a charter by the State of Pennsylvania with a capital of $150,000. John W. Ralston, Connellsville, Pa., is treasurer.

The Chicago Machinery Mfg. Co., Chicago, has been incorporated with a capital of $10,000 to manufacture machinery. The incorporators are: Frank L. Cheney, Daniel J. McMahon and Ernst C. Reniff.

The Smeeth Co., Chicago, has been incorporated with a capital of $400,000, to manufacture structural metal work. The incorporators are: John J. Peckham, John N. Ott and Leo Klein.

The Metal Mfg. Co., Evansville, Ind., has been incorporated with $25,000 capital stock, by Jos. F. Bartholomew, Wm. G. Frank and Jacob Caddon. The company will erect a plant, the first in the State, for the manufacture of metal household furniture.

The Cherrytree (Pa.) Iron Works, which was recently incorporated with a capital of $50,000, will engage in the general foundry and machine shop business. The development of coal in Clearfield, Indiana and Cambria counties has necessitated a great deal of this kind of work.

The United States Furnace Co., Chicago and Oklahoma City, Okla., has been incorporated with a capital of $500,000. The directors are: James Murphy, Chicago; Guy S. White, Chicago; W. A. Rogers, Chicago; A. J. McMahan, Oklahoma City; and L. W. McRee, Oklahoma City.

The American Cast Iron Pipe Co., Atlanta, Ga., has applied for a charter, capitalization mentioned being $150,000, with the right to increase it to $1,000,000. The incorporators are: J. J. Egan, W. W. Orr, George Muse, E. L. Douglas, J. W. Blair and E. E. Linthicum.

The Buffalo Sheet Metal & Mfg. Co., Guthrie and Buffalo, N. Y., has been incorporated with $20,000 capital stock. The incorporators are: E. E. Frutchey, Geo. M. Kellog, Hornellsville, N. Y.; G. V. Pattison and H. W. Pentecost, Guthrie.

The Banner Fence Co., Grand Rapids, Mich., has been incorporated to manufacture and sell wire fence. The company has an authorized capital stock of $300,000, of which $150,200 has been subscribed and the rest paid in in property.

The Newcomb Motor Co., Harrison, N. Y., appears among the new incorporations of the week. Purpose, to manufacture motors, engines, automobiles, etc.; capital, $400,000; incorporators, W. Arthur Newman, James A. Mooney and Thomas H. Ferry, all of No. 68 Broad street, New York, N. Y.

The Reliance Metal Co., scrap iron and metal broker, New York, has been incorporated with a capital of $25,000. The incorporators are: Michael A. Rourke, No. 43 Exchange place; Montague Newton, No. 32 Broadway; Hugh Francis Doris, No. 30 West Thirty-eighth street, all of New York, N. Y.

The Boreel Wrecking Co., New York, has been incorporated to manufacture and deal in iron, metal and building materials. The capital is $8,000, and the incorporators are: Robert W. Crawford and Percy Bordwell, both of No. 52 Broadway, and Aaron Cantor, No. 516 East Twenty-third street, all of New York, N. Y.

The Duplex Steel Plate Piling Co., No. 525 Main street, East Orange, N. J., has been incorporated with a capital of $500,000 to manufacture steel articles, conduct machine work and operate foundry and rolling mill. The incorporators named are: Walter Scranton, John R. Williams and Charles C. Gill, all of the address given.

The Interstate Tunnel Railway Co., No. 763 Broad street, Newark, N. J., has been incorporated in both New Jersey and New York. It purposes the construction of a tunnel or tunnels under the North River and to extend the rapid transit system of New York city to the territory served by the trolley lines of Eastern New Jersey. The capital is $7,500,000 and the incorporators, among the names of which appear those of capitalists interested in the transportation lines on both sides of the river, include: Thomas W. McCarter, Rumson, N. J.; Charles A. Sterling, East Orange, N. J.; Albert B. Carlton, Elizabeth, N. J.;

Mark T. Cox, East Orange, N. J.; John P. McDonald, Herbert H. Vreeland, John D. Crimmins, Robert A. C. Smith and Henry D. Macdona, all of New York.

The following companies have been incorporated under the laws of Ontario:

The General Brass Works, Ltd., head office, Toronto, capital, $40,000. Provisional directors: Murray J. Woodbridge, Frank E. Maulson and Wm. J. Thacker.

The Canadian Tap & Die Co., Ltd., head office, Galt, capital, $40,000. Provisional directors: Wm. M. Preston, Franklin E. Snow and Frank O. Wells.

The Canada Fence Co., Ltd., to manufacture wire fences, etc., head office, London, capital, $40,000. Provisional directors: Wm. S. B. Barkwell, James E. Sutton and Donald McLachlan.

Canadian Swensons, Ltd., to manufacture machinery, etc., head office, Lindsay, Ont., capital $40,000. Provisional directors: Henry Rustad, Isaac E. Weldon and Wm. H. Kennedy.

The Canadian Tool Co., Ltd., Woodstock, Ont., has been incorporated with a capital of $100,000.

The B. F. Sturtevant Co., incorporated in Massachusetts to manufacture engines, machinery, etc., have been licensed to do business in Ontario on a capital of not over $50,000.

The Stuart Machine Co., Ltd., Winnipeg, Man., Canada, dealer in engines, boilers, steam pumps and machinery of all kinds, has increased its capital stock from $49,000 to $200,000.

Fires:—

The plant of the Climax Fuse Co., Avon, Conn., sustained a $100,000 loss by fire Sept. 15.

The St. Lawrence Iron Works, Montreal, Can., was almost completely destroyed by fire Sept. 17. A. McIntosh & Co. are proprietors. The loss aggregates $7,000.

Fire at the Ewaldt Iron Co., Louisville, Ky., Sept. 16, caused a loss of $4,000 on the building and badly damaged machinery, valued at $50,000. The plant will be idle for a few days, throwing 40 men temporarily out of work.

New Construction:—

F. E. Glenn is adding a large molding room to his foundry at St. Charles, Ill.

The American Can Co. is preparing to erect a factory at Savannah, Ga., and one at New Orleans.

The Flour City Ornamental Iron Works is building an addition to its works in Minneapolis.

The Vulcan Foundry Co., of Hamilton, O., has broken ground for a new foundry.

Blast furnace F, of the Colorado Fuel & Iron Co., is completed and will be placed in operation as soon as possible.

The Misko Motive Power Co., Buffalo, N. Y., has selected a site for the erection of buildings to manufacture an internal combustion steam engine.

The American Pipe & Foundry Co. has purchased 40 acres of land in North Birmingham, Ala., and will erect a plant to employ 400 men.

The Birmingham Frog & Crossing Co. is to erect a large building at North Birmingham, Ala., where it will employ about 300 men.

The Halcomb Steel Co., Syracuse, N. Y., expects to have its new crucible steel plant in operation before the first of the year.

The Shenango Furnace Co. is making additions to its plant at Sharpsville, Pa., which will increase its daily capacity for the four stacks to 1,200 tons.

The Interstate Steel Co., Rockford, Ill., will install a new tempering furnace in the plant at once to care for the automobile hardening business of the company.

The Midland Steel Co., Beaver, Pa., has begun the erection of a large blast furnace at Cook's Ferry, Beaver county.

The Weaver Coal & Coke Co., Chicago, has purchased 5,000 acres of coal lands near Knoxville, Tenn., and will erect a number of coking plants.

The Ban Foundry Co., of Chicago, Ill., has taken out a permit for a one-story brick foundry to be erected at 876-886 Carroll avenue, at a cost of $5,000.

The J. M. Robinson Mfg. Co., Cincinnati, has its new plant on Spring Grove avenue practically completed, and the work of moving will soon begin.

The Rhode Island Malleable Iron Works, Hills Grove, R. I., is moving one of its furnaces and building an addition which will require the employment of 25 additional molders.

The State of Pennsylvania will shortly ask for bids for a new bridge to span the Susquehanna at Mifflinville, Columbia county.

The Standard Steel Co. is completing a 100-ft. addition to its wheel rolling mill at Burnham, Pa. The steel foundry has also been enlarged.

The Pennsylvania Steel Co. has begun the erection of its coke plant at Steelton, Pa. Work is being rushed night and day.

The works of the Ohio Cultivator Co., Bellevue, O., are practically completed, and work has been commenced on the new engine room to accommodate two gas engines with direct generator.

The J. B. Fate Co., of Plymouth, O., has broken ground for the erection of a foundry, 70 x 120 ft., and will be glad to receive catalogues and prices on foundry equipment and supplies.

It is announced that the port of Hamburg, Germany, is to have the largest dry dock in the world, with a lifting power of 17,500 tons, which will be completed by the first of the year 1907.

The E. F. Reece Co., Greenfield, Mass., is working on important additions to its plant. Shaftings, pulleys, etc., will be purchased immediately and new machinery added gradually.

The Bucyrus Steel Casting Co., Bucyrus, O., expects to erect a new steel foundry building 130 x 300 ft., the contract for which will probably be let in the course of the next 30 days. The company will be in the market for complete equipment.

A permit has been taken out by the American Machine Co., of Louisville, Ky., to build two additions to its foundry plant, one of which will be a one-story building 42 x 160 ft., and will be used as the main foundry building. The other building will be two stories in height and 26 x 36 ft. and will be used as a finishing department.

The Oregon Foundry & Machine Co., Oregon, Ill., plans to increase its machine shop 50 percent and its foundry 25 percent. Its molding machine line is meeting with favor, and orders are now being filled for India, Germany, Canada and domestic trade. A large amount of casting is being done for Chicago manufacturers.

The Weir & Craig Mfg. Co., Chicago, is rebuilding its plant on the same lines as before the recent fire. The work will be completed within a month and the company will be in the market for lathes, shapers and milling machinery. Those departments not affected by the fire are being operated full time.

The J. Stevens Arms & Tool Co., Chicopee Falls, Mass., has under construction a two-story addition to mill 2 of the power plant, which will thereby be made a six-story building. A seven-story tower for stairways, elevators, etc., will give a clear floor space for the entire building.

The plant now employs over 1,400 men. Nine years ago it employed but 44. Increase of business resulted in the purchase in 1899 of the Overman wheel plant, and in 1902 of the Lamb manufacturing plant.

The Wallingford Metal Co., Wallingford, Conn., mention of whose incorporation was made in the issue of Sept. 7, will erect a plant in the near future, employing about 50. The main building will be 165 x 165 ft. A power house and a building for casting work will also be built.

Additions to the works of the Marion Steam Shovel Co., Marion, O., include two buildings, 80 x 210 ft. Machinery for these buildings has been practically all secured.

The Fort Pitt Malleable & Gray Iron Co., Pittsburg, has completed a core room 50 x 150 ft., containing four continuous ovens and has equipped them with modern machinery. Additional molders are being employed to increase the monthly capacity to 1,000 tons of malleable castings.

The Goulds Mfg. Co., Seneca Falls, N. Y., has completed plans for a group of new buildings on which work will soon be started. The largest building will be a foundry 144 x 442 ft., which will be equipped with a large amount of machinery yet to be purchased. A rattling room, pattern shop, power plant and a six-story pattern storage building will also be erected, brick being used exclusively.

General Industrial Notes:—

The Nova Scotia Steel Co. has purchased extensive submarine ore areas in Newfoundland.

The Eagle Iron Co.'s furnace, Attalla, Ala., will be put in blast about Dec. 1.

The Gadsden furnaces of the Alabama Steel & Wire Co. are temporarily idle for repairs.

The Dayton Vulcan Foundry Co., Dayton, O., has begun operations for manufacturing castings for machine tool supplies. One hundred molders are employed.

The Bessie mines of the Sloss-Sheffield Steel & Iron Co., Jefferson county, Ala., are about ready for operation, branch railway lines having been completed.

The Fargo Foundry Co., Fargo, N. D., has purchased the big street car barns at that place to accommodate its increased business.

The Lackawanna Iron & Steel Co. has started two of the battery of coke ovens at its plant at Colebrook, near Lebanon, Pa.

The Thomas Iron Co. has re-elected its board of directors, and is turning out the largest product in years at its furnaces in the Lehigh valley.

The Board of Trade of Reading Pa., has taken steps to rehabilitate one of the large idle foundries in that city. A committee has been named to secure an occupant.

Temple and Topton furnaces in Berks county, Pa., and one of the furnaces at Allentown are to be started very shortly.

It is reported that the Kalzium-Karbid-Genossenschaft, of Gurtnellen, Switzerland, is about to erect extensive works for the manufacture of steel and other metallurgical products by processes covered by the Kjellin patents.

The Moore Facing Works, of Providence, R. I., has moved from its old location to 143 Allens avenue. Since the death of Mr. John A. Moore the business is directed by Mr. J. W. Moore.

The Harrisburg Rolling Mill Co. on Monday started eight of its puddle furnaces. The puddle mill has been idle since spring, but the company has been operating its finishing mill at Lochiel, Harrisburg, Pa.

In the United Kingdom last year less than 1 percent of the industrial population participated in strikes and the number of working days lost in this way was the smallest on record.

The Pressed Steel Tank Co., Milwaukee, Wis., has optioned the plant of the Milwaukee Electric Co., at West Allis, and will close the deal at once. The plant represented an investment of $200,000.

The United Sheet & Tin Plate Co., Marietta, O., expects to start its plant at Marietta, O., in a short time. A considerable amount has been expended in installing new machinery and in other improvements.

The South Sharon, Pa., continuous sheet steel mill of the American Sheet & Tin Plate Co. has resumed operations after several weeks' idleness while heavy machinery was being installed.

The Roanoke, Va., plant of the Iron Company of America is to be dismantled and re-erected at Scottsdale, Pa., where it will be operated with other mills controlled by that company. The plant is equipped for manufacturing merchant bar iron.

Royce & Rocketts, machine agents, Washington, D. C., have doubled their force and are planning the establishment of Southern and Philadelphia offices. They report the machinery and machine tool business exceptionally bright during the dull season of the year with already a heavy booking of fall orders.

The Charter Mfg. Co., Chicago, will handle automobile and railway supplies, and is in the market for agencies. The business of the Automatic Lubricator Co., manufacturer of automobile and gas engine specialties, has been assumed.

The Altoona Iron Co., Altoona, Pa., at its annual meeting Sept. 20 decided on a number of improvements to its plant, and elected the following directors: John P. Levan, George W. Stratton, Dr. William M. Findley, S. M. Smiley, of Altoona, and Frank S. Fullerton, Philadelphia. H. K. McCauley was chosen secretary and treasurer.

The National Steel Casting Co., Ft. Wayne, Ind., operating a steel mill at Montpelier, has re-elected the following officers: G. Max Hofman, president, Ft. Wayne; James O'Donnell, vice president, Montpelier; C. F. Bash, secretary, Ft. Wayne; F. E. W. Scheimann, treasurer, Ft. Wayne.

The annual meeting of the Tidewater Steel Co. was held at Chester, Pa., last Wednesday, and these directors were elected: Evans R. Dick, Howard L. Moody, Joseph Gilfillan, George McCall, A. S. L. Shields, Charles A. Parker and C. E. Stafford, of Philadelphia; C. T. Shoen, New York; and F. W. Wood, Sparrow's Point. Mr. Stafford was re-elected president and Frank Dreizler, secretary and treasurer.

The Milwaukee Society of Municipal Engineers has been organized, its membership including electrical, civil and mechanical engineers, architects, metallurgists, mechanics and shop superintendents and managers. The society starts off with 50 members and will hold monthly meetings. Geo. P. Drave, consulting engineer, is president; C. J. Davidson, chief engineer of the Milwaukee Street Railway Co., vice president; E. P. Worden, mechanical engineer of the Prescott Pump Co., treasurer; and W. G. Starkweather, with the Allis-Chalmers Co., secretary.

The Hudson Iron Co., Secaucus, N. J., has leased the property of the Forest of Dean Iron Ore Co., near Fort Montgomery, N. Y., together with its water power and other rights, for a term of years. The Forest of Dean Co. exhausted the body of ore on its own lands a number of years ago, and, being unable to acquire the adjacent land into which its vein ran, was obliged to

suspend operations. This adjoining tract was purchased by the Hudson Iron Co. some time ago. It is the intention of the lessees to reopen the Forest of Dean mine at once and to tap the ore deposit upon its own land at the point where mining operations were left off, and begin the shipment of iron ore on a large scale at the earliest possible date to both its own furnace at Secaucus, N. J., and other furnaces that use the ore. T. P. Bisland has been appointed mining superintendent.

Trade Notes:—

The E. R. Allen Foundry Co., Corning, N. Y., is now occupying the new addition to its plant, which is 28 x 60 ft. A brisk business is reported.

The Baldt Steel Co., New Castle, Del., has booked orders for 160 heavy engine driving wheels, a part of which are for the Baldwin Locomotive Works.

The Baltimore Foundry Co., Baltimore, Md., reports that the stir of business will force it to increase its capacity. About 50 men are now employed.

A steel stack 150 ft. high has been completed by the William Allen Sons Co., Worcester, Mass., for the Portsmouth navy yards.

The Marine Iron Works, Chicago, is working on a number of export orders for marine machinery and steamboats. Cuba, Mexico and Nicaraugua are the principal purchasers.

The Niles-Bement-Pond Co. will soon enter the Canadian manufacturing field, through the acquisition of the business of the John Bertram & Sons Co., Ltd., Port Dundas, Ontario.

The Allis-Chalmers Co., Milwaukee, Wis., has just made heavy shipments of mining equipment to South Africa, Corea and South America. Fall export trade of this company, it is estimated, will be 300 tons monthly.

The Snow Steam Pump Works, Buffalo, N. Y., recently made a casting weighing 170,000 lb. to be used as a bed plate by California Gas & Electric Corporation. Seven other such castings are to be made.

The repair department of the Ralston Steel Car Co., Columbus, O., is working double turns in an effort to catch up with orders. The plant was but recently started, occupying the site and buildings of the old Rarig Engineering Co.

The Reeves Engine Co., with offices at 85 Liberty street, New York, through its Chicago manager, Joseph B. Hall, has arranged with the Dwyer Plumbing & Heating Co., of St. Paul, Minn., to handle the territory tributary to St. Paul. F. J. Spriggs, M. E., will be in charge of engineering matters for the Dwyer company.

Trade Publications.

The Independent Pneumatic Tool Co., Chicago, Ill., has just issued a four-page circular, entitled "Circular No. 5," in which it illustrates and describes its latest device of pneumatic drills and hammers.

The Billings & Spencer Co., Hartford, Conn., has issued a new list of drop forged machine wrenches. A large number of different types of wrenches are shown, including angle wrenches, both single and double ended, "S" wrenches, tool post wrenches and special wrenches.

The Emmert Mfg. Co., of Waynesboro, Pa., has issued catalogue No. 4, describing patent universal vises manufactured by them. These include stationary bottom and swivel vises for machinists and for cabinet and coach makers. The catalogue also shows universal machinists' and tool makers' vises, and quick acting cabinet makers' vises, together with a number of special forms of vise.

E. W. Bliss & Co., Brooklyn, N. Y., has issued a catalogue describing machinery for manufacturing pierced tin and iron ware. The book is 5 x 7 in. and comprises nearly 100 pages. It describes a large number of different types of power presses, shears, riveting machines, punches, flanging machines and other machines of kindred type. A table of dimensions for each machine in the catalogue is also given.

The Gisholt Machine Co., Madison, Wis., has recently issued a new catalogue describing Gisholt lathes. This is a handsome publication, 8 x 10 in., with a red and gilt cover and 40 pages. It contains interior and exterior views of the Gisholt shops, and photographs of the various types of lathes built, and photographs of the adaptation of these machines to various classes of work, such as making gears, cone pulleys, gasoline engine parts, projectiles, electrical machinery parts, etc.

The Green Engineering Co., Chicago, Ill., has recently issued a catalogue describing the Green Traveling Link Grate for steam boilers. The catalogue describes the operation and construction of the grate and gives photographs of numerous installations, and also includes photographs of the various parts, and diagrams showing its adaptability to different types of boilers. Ten pages of the catalogue are taken up with coal tables, giving a large amount of extremely valuable information regarding the coals of Ohio, Illinois and Pennsylvania.

The Cleveland Pneumatic Tool Co. has issued a catalogue, 6¼ x 9¼ in., containing 64 pages. It is entitled "Catalogue F," and contains illustrated descriptions of the various devices manufactured by this company, including scaling hammers, light and heavy chipping, caulking and beading hammers, light and heavy riveting hammers, pneumatic drills for use in boring both wood and metal, hose couplings and other devices. The catalogue is very neatly gotten up and the descriptions are clear and to the point.

The Henry Vogt Machine Co., of Louisville, Ky., has just issued a very neat catalogue, 6 x 9 in. (standard size) devoted to a full description of the refrigerating apparatus manufactured by this company. This includes, first, some illustrations of the plant, and a page of introductory matter treating of its ability and the equipment which enables it to turn out high class machinery. Next, there is a very clear treatment of the principles of refrigeration and especially of the absorption system. The application of refrigeration is then taken up including the rating of machines. The absorption machine is also described in detail after which the various species of auxiliary apparatus are described and illustrated, including equipment for refrigerating and for ice making. The back part of the catalogue is given up to the description of special fittings for ice machines for refrigeration work. The catalogue contains some tables bearing upon refrigeration matters.

The Wellman-Seaver-Morgan Co., Cleveland, has recently issued a catalogue illustrating and describing charging and manipulating equipment for iron and steel works. It describes the Wellman open-hearth charging apparatus, both high and low type, and also the crane type. It also shows and describes a number of installations of heating furnace charging machines, which are in operation at various plants, such as the Carnegie plant, at Homestead, the Algoma Steel Co., at Sault Ste. Marie, Eastern Steel Co., Pottsville, Pa., and some foreign plants. Other machinery described includes transfer tables, ingot strippers, soaking pit wanes, bloom chargers, etc. The book is gotten up in the characteristic handsome style adopted by the company, and comprises about 90 9 x 12 pages. It is well printed and handsomely illustrated.

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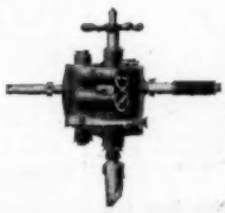

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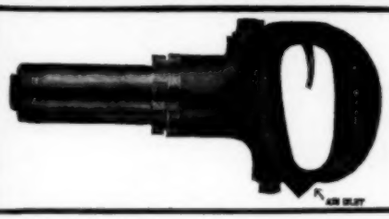

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Pittsburg Construction Co., Pittsburg, Pa.
Riter-Conley Mfg. Co., Pittsburg, Pa.
Russel Wheel & Foundry Co., Detroit, Mich.

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National Machinery Co., Tiffin, O.
Williams, White & Co., Moline, Ill.

Cableways—
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The Carborundum Co., Niagara Falls, N. Y.

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The Turner, Vaughn & Taylor Co., Cuyahoga Falls, O.

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Birdsboro Steel Foundry & Machine Co., Birdsboro, Pa.
Buffalo Foundry Co., Buffalo, N. Y.
Canton Foundry & Machine Co., Canton, O.
Farrel Fdy. & Mach. Co., Ansonia, Conn.
Francis & Nygren Fdy. Co., Chicago, Ill.
Great Lakes Engineering Wks., Detroit, Mich.
Lake Erie Engineering Works, Buffalo, N. Y.
The Macbeth Iron Co., Cleveland, O.
Mesta Machine Co., Pittsburg, Pa.
New Jersey Fdy. & Mach. Co., New York City.
Nortmann-Duffke Fdy. Co., Milwaukee, Wis.
Russel Wheel & Fdy. Co., Detroit, Mich.
Standard Foundry Co., Buffalo, N. Y.
Taylor, Wilson & Co., Ltd., Allegheny, Pa.
The Wm. Tod Co., Youngstown, O.
The Turner, Vaughn & Taylor Co., Cuyahoga Falls, O.
United Engineering & Fdy. Co., Pittsburg, Pa.
United States Cast Iron Pipe & Fdy. Co., New York.
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T. B. Wood's Sons, Chambersburg, Pa.
The Youngstown Engineering Co., Youngstown, O.

Castings (Malleable)—
Acme Steel & Malleable Iron Works, Buffalo.
Buckeye Steel Casting Co., Columbus, O.
Dayton Malleable Iron Co., Dayton, O.
The Haven Malleable Casting Co., Cincinnati, O.
Meadville Malleable Iron Co., Meadville, Pa.
Missouri Malleable Iron Co., East St. Louis, Ill.
New Jersey Fdy. & Mach. Co., New York City.
Pratt & Letchworth Co., Buffalo, N. Y.
Wm. B. Walter & Co., Chicago, Ill.

Castings (Semi-Steel)—
Farrell Fdy. & Mach. Co., Ansonia, Conn.
Francis & Nygren Fdy. Co., Chicago, Ill.
Lake Erie Engineering Works, Buffalo, N. Y.

Castings (Steel)—
Acme Steel & Malleable Iron Wks., Buffalo.
American Brake Shoe & Fdy. Co., New York City.
American Steel Foundries, New York.
Benjamin Atha & Co., Newark, N. J.
Birdsboro Steel Foundry & Machine Co., Birdsboro, Pa.
Crucible Steel Casting Co., Lansdowne, Pa.
Electric Steel Casting Co., Matthews, Ind.
Mesta Machine Co., Pittsburg, Pa.
National Steel Foundry Co., New York.
Nortmann-Duffke Fdy. Co., Milwaukee, Wis.
Otis Steel Co., Cleveland, O.
Pratt & Letchworth Co., Buffalo, N. Y.
Wm. B. Walter & Co., Chicago, Ill.
The Wellman-Seaver-Morgan Co., Cleveland, O.

Ceilings, Eaves Troughs and Conductors—
Berger Mfg. Co., Canton, O.

Cement—
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Chain Belting—
H. W. Caldwell & Son Co., Chicago, Ill.
Interstate Engineering Co., Cleveland, O.
Jeffrey Mfg. Co., Columbus, O.
Link-Belt Machine Co., Chicago, Ill.
New Jersey Foundry & Machine Co., New York City.

Chain Machinery—
Turner, Vaughn & Taylor Co., Cuyahoga Falls, O.

Chemists—
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Grasselli Chemical Co., Cleveland, O.
The R. W. Hunt & Co., Chicago, Ill.
The Roessler & Hasslacher Chemical Co., New York City.

Chrome Ore—
Geo. G. Blackwell, Sons & Co., Ltd., Liverpool, England.
Reed P. Blair & Co., Pittsburg, Pa.

Chucks—
Niles-Bement-Pond Co., New York.

Clutches—
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Interstate Engineering Co., Cleveland, O.
Lemley & Schultz, Chicago, Ill.
Link-Belt Machinery Co., Chicago, Ill.
Chas. G. Smith Co., Pittsburg, Pa.
T. B. Wood's Sons, Chambersburg, Pa.

Coal and Coke—
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Reed P. Blair & Co., Pittsburg, Pa.
The Bourne-Fuller Co., Cleveland, O.
M. A. Hanna & Co., Cleveland, O.
J. H. Hillman & Son, Pittsburg, Pa.
Ernest Law & Co., Philadelphia, Pa.
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Pickands, Mather & Co., Cleveland, O.
Rogers, Brown & Co., Cincinnati, O.
W. H. Thompson & Co., Philadelphia, Pa.
Washington Coal & Coke Co., Pittsburg, Pa.
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Russel Wheel & Fdy. Co., Detroit, Mich.
The Wellman-Seaver-Morgan Co., Cleveland, Ohio.
Wilcox Mfg. Co., Aurora, Ill.

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Cranes (Electric, Hand Power, Hydraulic, Jib and Locomotive)—
Alliance Machine Co., Alliance, O.
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Cleveland Punch & Shear Wks. Co., Cleveland.
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Vandyck Churchill Co., New York City.

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Bickford Drill & Tool Co., Cincinnati, O.
Cincinnati Machine Tool Co., Cincinnati, O.
Cleveland Punch & Shear Wks. Co., Cleveland.
Knecht Bros. Co., Cincinnati, O.
J. J. McCabe, New York City.
Niles-Bement-Pond Co., New York.
Pratt & Whitney Co., Hartford, Conn.
Vandyck Churchill Co., New York City.
Whitcomb-Blaisdell Machine Tool Co., Worcester, Mass.

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Elevators—
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Craig Ridgway & Son, Coatesville, Pa.
J. G. Spiedel, Reading, Pa.

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Norton Emery Wheel Co., Worcester, Mass.
Stow Mfg. Co., Binghamton, N. Y.

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Garrett-Cromwell Engineering Co., Cleveland.
R. M. Haseltine, Columbus, O.
S. V. Huber & Co., Pittsburg, Pa.
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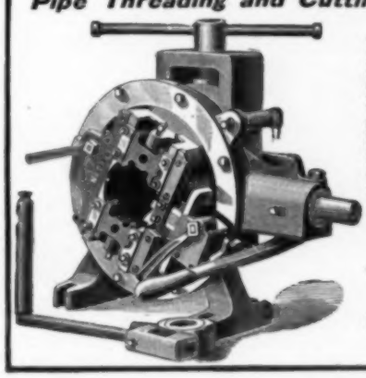

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Watson, Stillman Co., New York City.
Williams, White & Co., Moline, Ill.
R. D. Wood & Co., New York City.

Pumps—
James Bonar & Co., Incor., Pittsburg, Pa.
A. S. Cameron Steam Pump Works, New York.
Dean Bros. Steam Pump Works, Indianapolis, Ind.
The Deming Co., Salem, O.
Dravo Doyle & Co., Pittsburg, Pa.
Farrel Foundry & Machine Co., Ansonia, Conn.
Great Lakes Engineering Wks., Detroit, Mich.
Ingersoll-Sergeant Drill Co., New York City.
F. M. Prescott Steam Pump Co., Milwaukee, Wis.
Southwark Foundry & Machine Co., Philadelphia, Pa.
The Wm. Tod Co., Youngstown, O.
Waterbury Farrel Foundry & Machine Co., Waterbury, Conn.
Watson, Stillman Co., New York City.
R. D. Wood & Co., Philadelphia, Pa.

Punches and Shears—
Alliance Machine Co., Alliance, O.
Bertsch & Co., Cambridge City, Ind.
Bignall-Keeler Mfg. Co., Edwardsville, Ill.
Birdsboro Steel Foundry & Machine Co., Birdsboro, Pa.
E. W. Bliss Co., Brooklyn, N. Y.
Chambersburg Engineering Co., Chambersburg, Pa.
Cleveland Punch & Shear Wks. Co., Cleveland.
Farrel Foundry & Machine Co., Ansonia, Conn.
George A. Hogg Iron & Steel Fdy. Co., Pittsburg, Pa.
Long & Allstatter Co., Hamilton, O.
Mackintosh, Hemphill & Co., Pittsburg, Pa.
National Machinery Co., Tiffin, O.
R. S. Newbold & Son Co., Norristown, Pa.
Niles-Bement-Pond Co., New York.
Jos. T. Ryerson & Son, Chicago, Ill.
Scully Steel & Iron Co., Chicago, Ill.
Toledo Machine & Tool Co., Toledo, O.
United Engineering & Fdy. Co., Pittsburg, Pa.
Vandyck Churchill Co., New York City.
Waterbury Farrel Foundry & Machine Co., Waterbury, Conn.
Watson-Stillman Co., New York City.
Williams, White & Co., Moline, Ill.
R. D. Wood & Co., Philadelphia, Pa.

Punch Tools—
Blomfeldt & Rapp, Chicago, Ill.
Pratt & Whitney Co., Hartford, Conn.

Pyrometers—
Edward Brown, Philadelphia, Pa.
Charles Englehard, New York City.
S. H. Stupakoff, E. E., Pittsburg, Pa.
Uehling-Decker Co., Passaic, N. J.

Rails—
The Atlas Car & Mfg. Co., Cleveland, O.
Bourne-Fuller Co., Cleveland, O.
Carnegie Steel Co., Pittsburg, Pa.
The Cleveland Car Co., West Park, O.
A. G. Hathaway & Co., Cleveland, O.
Hyde Bros. & Co., Pittsburg, Pa.
Arthur Koppel, New York City.
Ernest Law & Co., Philadelphia, Pa.
Richardson & Co., Pittsburg, Pa.
Scully Steel & Iron Co., Chicago, Ill.

Rammers—
The S. Obermayer Co., Cincinnati and Chicago.
J. W. Paxson Co., Philadelphia, Pa.
The J. D. Smith Fdy. Supply Co., Cleveland.

Rapping Plates—
The S. Obermayer Co., Cincinnati and Chicago.
J. W. Paxson Co., Philadelphia, Pa.
The J. D. Smith Fdy. Supply Co., Cleveland.

Ratchet Drills (Universal)—
Armstrong Bros. Tool Co., Chicago, Ill.
Pratt & Whitney Co., Hartford, Conn.

Reamers—
The Cleveland Twist Drill Co., Cleveland, O.
Pratt & Whitney Co., Hartford, Conn.
The Whitman & Barnes Mfg. Co., Chicago, Ill.

Reversing Controllers—
The Electric Controller & Supply Co., Cleveland, O.
Alliance Machine Co., Alliance, O.
John F. Allen, New York City.
Chambersburg Engineering Co., Chambersburg, Pa.
General Pneumatic Tool Co., Montour Falls, N. Y.

Rivet Making Machinery—
National Machinery Co., Tiffin, O.

Rivets—
American Iron & Steel Mfg. Co., Lebanon, Pa.
Bourne-Fuller Co., Cleveland, O.
Garland Nut & Rivet Co., Pittsburg, Pa.
Arthur C. Harvey & Co., Boston, Mass.
A. G. Hathaway & Co., Cleveland, O.
Lockhart Iron & Steel Co., Pittsburg, Pa.
Joseph T. Ryerson & Son, Chicago, New York and Pittsburg.
Scully Steel & Iron Co., Chicago, Ill.

Riveting Machines—
John F. Allen, New York City.
Alliance Machine Co., Alliance, O.
Chambersburg Engineering Co., Chambersburg, Pa.
The Cleveland Machine & Mfg. Co., Cleveland, O.
Cleveland Pneumatic Tool Co., Cleveland, O.
Cleveland Punch & Shear Wks. Co., Cleveland.
General Pneumatic Tool Co., Montour Falls, N. Y.
Hanna Engineering Works, Chicago, Ill.
Independent Pneumatic Tool Co., Chicago, Ill.
Ingersoll-Sergeant Drill Co., New York City.
Niles-Bement-Pond Co., New York.
Rand Drill Co., New York City.
Joseph T. Ryerson & Son, Chicago, New York and Pittsburg.
Scully Steel & Iron Co., Chicago, Ill.
Watson-Stillman Co., New York City.
R. D. Wood & Co., Philadelphia, Pa.

Rock Drills—
Ingersoll-Sergeant Drill Co., New York City.
Jeffrey Mfg. Co., Columbus, O.
Rand Drill Co., New York City.

Rolls (Sand Chilled and Steel)—
Farrel Fdy. & Mach. Co., Ansonia, Conn.
George A. Hogg Iron & Steel Foundry Co., Pittsburg, Pa.
Mesta Machine Co., Pittsburg, Pa.
Seaman, Sleeth Co., Pittsburg, Pa.
United Engineering & Fdy. Co., Pittsburg, Pa.
The Wm. Tod Co., Youngstown, O.
Wheeling Mold & Fdy. Co., Wheeling, W. Va.

Rolling Mill Machinery—
Alliance Machine Co., Alliance, O.
Birdsboro Steel Foundry & Machine Co., Birdsboro, Pa.
The Cleveland Machine & Mfg. Co., Cleveland, O.
Farrel Fdy. & Machine Co., Ansonia, Conn.
Fischer Fdy. & Mfg. Co., Pittsburg, Pa.
Girard Boiler & Mfg. Co., Girard, O.
George A. Hogg Iron & Steel Foundry Co., Pittsburg, Pa.
Macbeth Iron Co., Cleveland, O.
Mackintosh, Hemphill & Co., Pittsburg, Pa.
Mesta Machine Co., Pittsburg, Pa.
Morgan Construction Co., Worcester, Mass.
Niles-Bement-Pond Co., New York.
R. S. Newbold & Son Co., Norristown, Pa.
Standard Engineering Co., Ellword City, Pa.